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THE HUMAN OCCUPATION ALONG THE STEEL CREEK FLOODPLAIN: RESULTS OF AN INTENSIVE ARCHEOLOGICAL SURVEY FOR THE L AREA REACTIVATION PROJECT, SAVANNAH RIVER PLANT, BARNWELL COUNTY, SOUTH CAROLINA

by

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TABLE OF CONTENTS

TABLE OF CONTENTS (Cont.)

TABLE OF CONTENTS (Cont.)

LIST OF FIGURES

LIST OF TABLES

MANAGEMENT SUMMARY

The United States Department of Energy initiated the reactivation plan for the "L" Reactor Area on the Savannah River Plant in 1980. This reactivation would result in the discharge of thermal effluent down the Steel Creek floodplain that could have an affect on archeological resources within and adjacent to the waterway. At the request of the U.S. Department of Energy, Savannah River Operations Office, an intensive archeological survey was conducted by the Savannah River Plant Archeological Research Program of the Institute of Archeology and Anthropology, University of South Carolina, in January and February, 1981. This intensive survey located, collected, tested and recorded 18 discrete archeological resources along the margins of the Steel Creek floodplain. The data recovered during the survey indicated a continuous human occupation within the watershed from the Early Woodland Period through the Mississippian Period and from the 1760s through the 1940s. Thirteen of the sites were outside of the area and would not be affected. They are reported in this study solely as documentation of the research. Five sites (38BR55, 38BR112, 38BR269, 38BR286 and 38BR288) were threatened and are potentially eligible for nomination to the National Register of Historic Places.

Site 38BR55 is a relatively undisturbed prehistoric habitation site that contains evidence of occupation from the Early Archaic through the Mississippian periods. The location of the site along the terrace adjacent to the present course of Steel Creek may be affected by erosive activity associated with the "L" Reactor reactivation.

Sites 38BR112, 38BR269 and 38BR288 are mill dams dating between 1780 and 1870. Each dam is documented by Mills' Atlas (1825) in the Barnwell District. Although none of the mill dams exhibited evidence of a mill house, the features are significant due to the relative integrity of the earthworks. The other historic site, 38BR286, is an historic period road and bridge approach dating to 1786. No evidence of the wooden bridge superstructure exists. Based on the relative structural integrity of the earthen features and the documentation in the historical records of South Carolina, these four sites are considered as potentially eligible for nomination to the National Register of Historic Places, and since they are located within the floodplain of Steel Creek, they require special consideration with respect to erosion.

As a means of mitigating any adverse effects to these five sites, a plan is developed that involves three stages, if necessary. First, the sites will be staked and inspected (monthly) in a manner so that the erosive factor can be monitored. Second, if erosion threatens any of the sites, a preservation plan will be initiated to stabilize the erosion. Finally, in the event that erosion cannot be stablized, a data recovery stage aimed at mitigating any adverse erosive effects to the site(s) will be initiated. The area should be monitored for a period of two years following the beginning of thermal effluent discharge in the stream. Based on the lack of erosion at the sites during previous reactor operations, it is unlikely that erosion control and data recovery will be required. This plan has been developed to assure the preservation of these significant archeological resources.

PREFACE

During January and February of 1981, an intensive archeological survey of the Steel Creek terrace and floodplain system below the "L" Reactor Area was conducted by the Savannah River Plant Archeological Research Program of the Institute of Archeology and Anthropology, University of South Carolina, for the purpose of identifying the archeological resources and assessing their significance within this portion of the Savannah River Plant. The survey was funded by the United States Department of Energy under a general contract for archeological investigations (EW-78-S-09-1072). The survey was required as part of the project plan for the reactivation of the "L" Reactor in order to comply with the requirements of the National Environmental Policy Act of 1969, Executive Order 11593, the National Historic Preservation Act of 1966, as amended in 1980, and the Archeological and Historic Preservation of 1974. In accordance with these laws, a complete archeological survey of the potential impact area along Steel Creek was accomplished, resulting in the recovery of data for 18 archeological sites (Fig. 1).

According to the evidence recovered from the 18 sites, the Steel Creek watershed's occupation extends to at least 8,000 B.P. Site 38BR55 is considered eligible for nomination to the National Register of Historic Places. Recommendations for the protection of this site and of four historic earthen structures in the floodplain are presented, along with a summary of the archeological background, methods, environmental reconstruction, research results, and recommendations resulting from the survey of the Steel Creek terrace and floodplain system.

ARCHEOLOGICAL BACKGROUND

The Prehistoric Occupation of the Savannah River Valley

Within the drainage of the Savannah River below the Fall Line, investigations of cultural heritage from an archeological perspective have been focused on selected areas. For this reason, an overview of the prehistory of the area must rely on information selectively investigated without regard for general archeological pattern. This general discussion of the occupational history within the study area and immediate environs will be an attempt to characterize the general prehistory of the Savannah River drainage within the Coastal Plain (Fig. 1).

Archeological undertakings of a controlled nature were begun in the latter half of the last century by Thomas (1894) and Moore (1899) in their studies on prehistoric mound sites within river valleys of the eastern United States. Their efforts resulted in the location and collection of selected large sites within the Savannah River area; however, these pioneer studies were of value only in documenting the presence of sites within the drainage but these were the pioneering efforts in the study of the region's archeological resources.

More scientific archeological research within the area began with the efforts of William Claflin in the vicinity of the Fall Line at Stalling's Island. Claflin excavated a large shellmound, the Stalling's Island Site, on an island within the Savannah River during the 1920s and documented an assemblage of the earliest ceramic complex in the eastern United States (Claflin 1931; Sears and Griffin 1951; Bullen and Green 1970). For this reason, the Stalling's Island Site has become one of the most important cultural resources known from the Southeast and has been subjected to intermittent investigations since Claflin's first study (Fairbanks 1941; Sears and Griffin 1950; Bullen and Green 1970).

In the delta region of the Savannah River, Antonio Waring was instrumental in the initial understanding of the prehistoric archeological record. During his brief life, Waring, through cooperation with various archeologists, recorded, collected and/or excavated many of the key archeological sites that would form the foundation of future archeological research in the Savannah area. Waring and others were responsible for the description of the basic ceramic types and general ceramic complexes such as the Deptford ceramic complex (Waring and Holder 1968), Woodland and Mississippian ceramic types (Caldwell and Waring 1939), and Early Woodland ceramic types and assemblages (Williams 1968: 152-215). The summary of Waring's work provided by Williams (1968) stands as a major contribution to the study of Savannah River prehistory.

Other research in the Savannah area was conducted during the W.P.A. period on the Irene Mound Site, a Mississippian Period site. Conducted over the course of several years, the excavations revealed the presence of a long-term occupation associated with a ceremonial center (Caldwell and

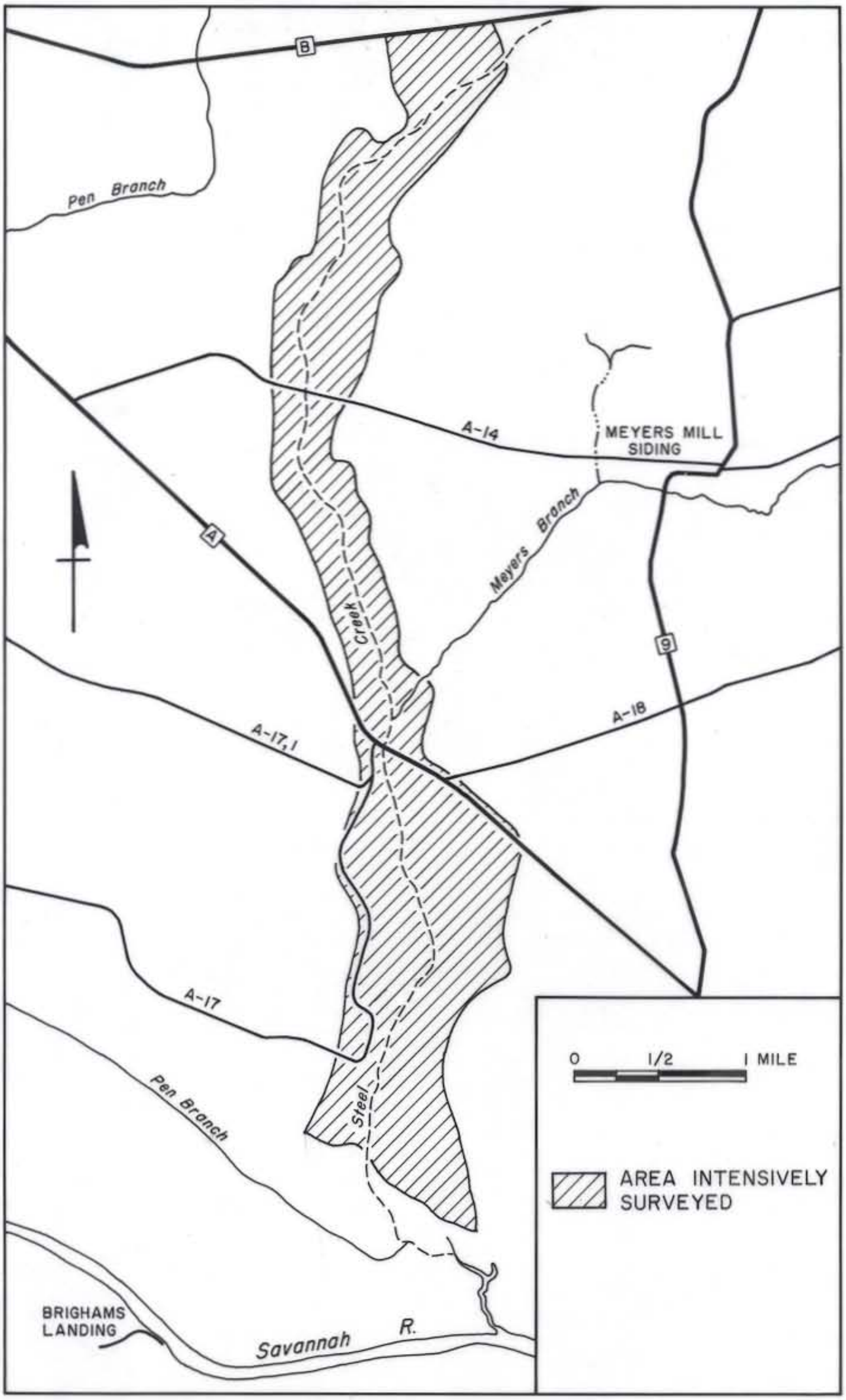


Figure 1: General area map of the Steel Creek basin showing the area of Steel Creek that was intensively surveyed.

McCann 1941). The excavations yielded the first thorough plan of such a ceremonial complex within the Atlantic Coastal area and extended the known archeological record into protohistoric times.

Subsequent research was delayed for almost two decades, until the 1960s when renewed interest in the initial ceramic period prompted the work of James Stoltman at Groton Plantation (Stoltman 1974). This research project involved the survey and test excavation of sites within the plantation for purposes of exploring the development of Late Archaic and Woodland cultures in the riverine area of the Coastal Plain. The major outcome of this research was the excavation of two sand mounts, Rabbit Mount and Clear Mount. These contained shell middens associated with some of the earliest ceramics known for North America. In addition, sites representative of Archaic, Woodland and Mississippian occupations were located in the survey, and the distribution of these sites suggested to Stoltman (1974: 229-244) radical differences in subsistence and settlement practices at various times.

Following Stoltman's research, Drexel Peterson (1971) intensified the survey of the Groton Plantation area in order to refine specific hypotheses regarding ceramic chronology and cultural development. The general result of the study was the discovery that changes in subsistence strategies were not appreciable during the Woodland Period, as was thought by Stoltman (1974). Another result was a ceramic chronology that included several additional "phases" during the Early Woodland Period and later times. These latter results have yet to be substantiated from other research in the general area.

Concomitant with the latter research was the expansion of study in other areas of the Savannah drainage. This research included survey and excavation at White's Mound (Phelps and Burgess 1964; Phelps 1968), Hollywood Mound (DeBaillou 1965), the Theriault site (Brockington 1971), Mississippian sites along the Savannah River (Ferguson, personal communication), the Augusta area (Ferguson and Widmer 1976), and recent work at Stalling's Island (Bullen and Green 1970). Thomas et al. (1978) provided an updated chronology for the Late Archaic of the lower Savannah River Valley through their work at St. Catherine Island.

Works by DePratter (1976, 1977) refined the chronology of the Early Woodland in the Savannah River Valley and Georgia coast, and suggested changes in the subsistence and settlement patterns that occurred within this region during this period. Trinkley (1980) made similar contributions toward our understanding of the settlement changes and chronology of the Woodlands Period of the coast and Coastal Plains of South Carolina.

Other works from outside of the Savannah River Valley have increased our knowledge of the interior Coastal Plain of South Carolina. Trinkley (1974) reported the findings of the Albert Love site. This is one of a few Upland Late Archaic sites excavated in the Upper Coastal Plain. Excavations at four sites tested for the Southeastern Columbia Beltway Project (Commonwealth Associates 1979) and at the Cal Smoak site (Anderson, Lee, and Parler 1979) provided data useful in formulating prehistoric chronologies for the Upper Coastal Plain of South Carolina. Brooks (1980) provided survey and excavated data to suggest settlement/subsistence patterns for the lower interior Coastal Plain. Larson (1981) also suggested patterns of late prehistoric subsistence within the interior Coastal Plain. The combined results of these research efforts form the basis for the present understanding of prehistoric development within the Savannah River Valley below the Fall Line. Although a synthetic overview of the prehistory of the area is yet to be written, the initial foundation exists for a general chronological framework (Table 1).

Paleo-Indian (10500 - 9500 B.C.)

The Paleo-Indian period of the eastern United States is largely recognizable by the presence of the fluted Clovis (or Clovis-like) points and, in the Southeast, by unfluted lanceolate points such as the Quad and Suwanee types. Radiocarbon dates from the Debert site in Nova Scotia and the Shawnee-Minisink site on the Delaware River of Pennsylvania average 8600 B.C. for fluted point forms. Dates from west of the Mississippi suggest earlier occupations for that area beginning at ca. 9500 B.C. (Wormington 1957).

The subsistence resources exploited by Paleo-Indian populations of the eastern United States are poorly known. Little subsistence data have been recovered from Paleo-Indian sites east of the Mississippi River. Because of the lack of data, the earliest reconstructions of the subsistence patterns of this period were based upon faunal information borrowed from sites located on the Western Plains. Based on similarities in projectile points and overall similarities in tool assemblages, it is generally assumed that most Paleo-Indians of North America were similarly adapted to a system focusing on the exploitation of now-extinct, large herbivores (Mason 1962: 243).

Recent data from the eastern United States have resulted in questions being raised about the role that the hunting of the megafauna played in the subsistence strategies of these people. Food remains from Meadowcroft Rockshelter in Pennsylvania include large now-extinct fauna. Primary sources of food include white-tailed deer (*Odocoileus virginanus*), elk (*Cervus canadensis*), nuts, and chenopod seeds (Adovasio, et al. 1977: 154). Shawnee-Minisink in Pennsylvania produced hawthorn pits and fish remains (McNett, McMillian, and Marshall 1977). These sites suggest that resources other than megafauna may have played a very important role in the Paleo-Indian diet.

In the Southeast, studies by Williams and Stoltman (1965), Waller (1970), and Michie (1977), however, suggest a strong geological correlation between the several forms of Paleo-Indian projectile points and the margins of rivers that are often the locations of mastodon fossil recovery. Bullen, Webb, and Waller (1970) also produced evidence of a mastodon vertebra that was apparently cut while the bone was green. These studies suggest that areas suitable for megafauna such as wide river margins may be closely correlated with Paleo-Indian site locations in the Southeast.

Settlement data for the Paleo-Indian period occupation for the Savannah River Plant are rare. Prior to this survey, only two fluted points have been recovered within the plant boundaries.

TABLE 1

GENERAL OCCUPATIONAL SEQUENCE FOR THE SAVANNAH RIVER BASIN BELOW THE FALL LINE
[Based on Stoltman (1974), Ferguson and Widmer (1976), Michie (1977) and Coe (1964)]

CULTURAL PERIOD	TIME SCALE		DIAGNOSTIC ARTIFACTS
Historic			Non-native material products (e.g. mass-produced goods)
	A.D. 1700		
		Irene	Irene filfot stamped, incised & plain ceramics, small triangular projectile points and Southern Cult objects
Mississippian	A.D. 1200		
		Savannah I	Savannah complicated stamped, plain & burnished ceramics, and small triangular points
	A.D. 1000		
Late Woodland		Savannah II	Savannah fine cordmarked and burnished ceramics, and small triangular points
	A.D. 700		
Middle Woodland		Wilmington	Wilmington coarse cordmarked ceramics, large triangular points
	A.D. 1		
		Deptford	Deptford linear check stamped, simple stamped and check stamped ceramics
Early Woodland	500 B.C.		
		Refuge Thom's Creek	Simple stamped, linear punctate, punctate, punctate and incised ceramics with sand temper
	1000 B.C.		
		Stalling's III	Decorated fiber tempered ceramics & Otarre points
Late Archaic		Stalling's II	Plain fiber tempered ceramics and Savannah River & Otarre points.
		Stalling's I	Savannah River points
	3000 B.C.		
Middle Archaic			Guilford, Morrow Mountain, Stanly, and Kirk points
	7500 B.C.		
Early Archaic			Palmer, Taylor and Dalton points
	9500 B.C.		
Paleo Indian			Quad, Suwanee, and Clovis points
	11000 B.C.		

Evidence for Paleo-Indian occupation has, however, been recovered from the Coastal Plain of Georgia (Michie 1977) and from the Theriault Site (Brockington 1971). Although complete assemblages have yet to be found in association with the diagnostic fluted points typical of all of the above localities, the presence of the points would suggest some activity within the region during the latter portions of the Pleistocene.

Michie's 1977 study suggests a general model for the location of Paleo-Indian sites within the Coastal Plain based on the distribution of fluted points. He concludes that:

> The overall pattern of projectile point distribution seems to involve the larger river systems (of South Carolina): such as the Broad, Savannah, Wateree, Pee Dee, Congaree, and the smaller Edisto Rivers. When these rivers are involved with point distributions and location, the points usually occur at the intersection of creeks and the highest portion of land near that intersection (Michie 1977: 92).

Due to geological conditions following this Pleistocene adaptation, the recognition of Paleo-Indian sites is difficult. Holocene changes in stream hydrology have resulted in the deposition of recent sediments on many locations believed to be favored by these early hunter-gatherers (Michie 1977). These changes may in part account for the scarcity of Paleo-Indian remains at the Savannah River Plant. Given Michie's data, sites may occur at the confluences of major tributaries (Upper Three Runs, Four Mile, Pen Branch, Steel, and Lower Three Runs), but their presence is probably obscured by alluvial sediments of great depths.

The two points discovered on plant property were found at locations that do not fit Michie's model. One was discovered on Upper Three Runs 15 miles from the Savannah River. The other point (also previously unreported) was discovered in the xeric sandhills far from any large stream. Both discoveries suggest that a much more complicated settlement pattern exists for the Upper Coastal Plain than that proposed by Michie.

Early Archaic (9500-7500 B.C.)

Archeological evidence of the earliest Holocene hunter-gatherers is composed of the presence of the Dalton-Hardaway phase (Goodyear 1974; Coe 1964) throughout the Eastern United States. During this period, lanceolate, indented base Dalton points are gradually replaced by small indented base, side-notched forms (Hardaway Side-notched). Coe (1964: 64, 81) suggests these points to be roughly contemporaneous. The Hardaway side-notched points are rare in most parts of South Carolina (Goodyear 1979: 79) and do not seem to be present on the Savannah River Plant.

Radiocarbon dates for the Dalton phase range between 8480 and 6920 B.C. Lower layers of Graham Cave in Missouri containing Dalton points cluster between 7700 and 7000 B.C. (Crane and Griffin 1978). Standfield Worley Bluff Shelter in northern Alabama contained layers producing both Daltons and side-notched points that were dated at 6920 and 7640 B.C. Rogers Shelter in Tennessee produced dates of 8,350$\pm$330 and 8,480$\pm$650 B.C.

(Griffin 1974: 94).

Associated with this temporal phase and with Paleo-Indian and later Early Archaic phases is a variety of unifacial blade and flake tools intentionally retouched for the tasks of scrapping, cutting, and graving (Goodyear, House, and Ackerly 1979: 97). Unique to the Dalton-Hardaway phase of Arkansas, and, perhaps, South Carolina, is the presence of bifacial adzes (Morse and Goodyear 1973; Goodyear, House and Ackerly 1979: 96).

Following the Dalton-Hardaway phase, the latter portion of the Early Archaic is represented by a series of corner- and side-notched projectile points. These include the Taylor, Palmer, and Kirk points (the Kirk point is considered here as transitional between the Early and Middle Archaic periods). Taylor points are known throughout the Coastal Plain of South Carolina, and Palmer and Kirk points have been recorded throughout South Carolina and adjoining states within the Coastal Plain and Piedmont physiographic province.

Limited stratigraphic evidence from the Theriault site on Brier Creek in Georgia suggests that Taylor points underlie Palmer points (Brockington 1971). Materials recovered from the nearby Cal Smoak Site in the Edisto drainage (Lee and Parler 1972; Anderson, Lee, and Parler 1979) suggest a clear priority of Palmer occupations to Kirk and Middle Archaic forms.

The Early Archaic represents the initial response of prehistoric inhabitants of the Coastal Plain, and North America in general, to the ameliorating climatic conditions of the Holocene. The changes in climate and associated vegetational patterns and faunal populations during the immediate post-Pleistocene provided a much more suitable environment for human population growth. Hunting and gathering resources were more plentiful due to this change from a cooler climate to a milder climate with increases in deciduous nut- and seed-bearing vegetation. Although variation occurred in this Holocene climatic sequence, the present-day character of the Coastal Plain was beginning to develop at this time.

Floral and faunal remains associated with Dalton sites of the Southeast and Midwest include white-tailed deer, turkeys, cotton-tail rabbits, squirrels, raccoons, fishes, mussels, and wildfowl (McMillian 1971).

Locational studies of Dalton sites have been done in several parts of the South. The locations of Dalton-Hardaway associations in the Coastal Plain of Georgia have been examined by Fish (1976: 22-23), who suggests a strong association between large stream systems and these Early Archaic types. Dalton period occupations in Arkansas, however, are spread both along and between the large stream systems, suggesting the first intensive human occupation of the inter-riverine areas of the southeastern United States (Morse 1973; Goodyear, House and Ackerly 1979: 98).

Cal Smoak and other Palmer components from the Fall Line and Coastal Plain (Michie 1971; Coe 1964) suggest strong associations with large stream systems, although in the Piedmont, House and Ballenger (1976) and Goodyear (1978) indicate an extensive upland, ridgetop association for small Palmer components. These results may indicate a widespread occupation and diffuse land use pattern related to a broad spectrum subsistence base during the latter portions of the Early Archaic. This and any other inference for the period within South Carolina, however, must await evaluation through excavation and more intensive analysis.

To characterize the Early Archaic period, it must be mentioned that the evidence is minimal, at best, for the Coastal Plain. Dalton-Hardaway and Palmer occupations are surely present based on the common occurrence of projectile points, but associated assemblages are as yet poorly understood. Distributional studies (Goodyear 1978; Goodyear, Ackerly and House 1979) indicate a wide-ranging land use pattern, which is suggested to relate to the exploitation of deer in the uplands and riverine resources in major drainages of the Piedmont. The general reconnaissance of the Savannah River Plant located 10 Early Archaic components, 3 Dalton and 7 Palmer, in geographical contexts ranging from high uplands to the river terraces of the Savannah (Hanson, Most and Anderson 1978).

Middle Archaic 7500-3000 B.C.)

This period is characterized by a continuance of a generalized hunting and gathering pattern with changes in projectile point morphology. Four projectile point forms are typical of this period: Kirk, Stanley, Morrow Mountain, and Guilford.

The Kirk includes a variety of corner- and side-notched point types that differ largely from the Palmer because the Kirk lacks basal grinding and also straight based, serrated forms (Coe 1964). Radiocarbon 14 dates cluster betwen 7500 and 7000 B.C. Dates from sites in the Little Tennessee Valley include figures of 7,485±270 B.C., 7,400±215 B.C., and 7,225±240 B.C. from Icehouse Bottom; 7,460±290 B.C. from the Patrick site; and 7,160±140 B.C. and 7,380±250 B.C. from Rose Island (Chapman 1977: 161-162). Other dates, 6,430±130 B.C. from the Six Toe site in northern Georgia, and 6,570±300 B.C. and 7,900±500 B.C. from the St. Albans site in West Virginia, have been recorded for Kirk corner- and side-notched forms (Broyles 1971).

Kirk tool kits differ from earlier assemblages by the occasional appearance of grinding tools. Two metates were reported from Russell Cave in northern Alabama (Griffin 1974: 2). Whether these tools represent an intensification of nut resources or the first intensive use of small seeds is unclear (Goodyear, House, and Ackerly 1979: 103), but their presence suggests an increased exploitation of vegetation from earlier periods.

The Kirk forms are succeeded by indented based, stemmed Stanley points. These are radiocarbon-dated at 5,840±215 B.C. at Icehouse Bottom and 5,860±175 B.C. at the Patrick site in the Little Tennessee River Valley (Chapman 1977). Changes in tool kits are represented by the disappearance of the well-made "tear drop" endscrapers found in earlier assemblages and the first appearance of ground stone tools represented by semi-lunate atlatl weights (Coe 1964: Table 2; Chapman 1977).

The Middle Archaic concludes with the presence of Morrow Mountain and Guilford point types. The Morrow Mountain points consists of slightly shouldered points with slightly tapering stems and round bases. Little is known about associated assemblages. Burial goods from the Standfield-Worley Rockshelter in northern Alabama suggest the presence of crude unifacial side- and endscrapers (DeJarnette et al. 1962: 83). Chapman (1977: 106) reports the presence of drills and scrapers in the Little Tennessee Valley. A hearth with associated projectile points from site 38LX5 at the Fall Line of South Carolina dates the Morrow Mountain phase to 3,520$\pm$170 B.C. Other dates from Alabama and Tennessee range from 4750 to 4030 B.C. (Chapman 1976: 8).

The Guilford point can be described as a leaf shaped or lanceolate point with an excurvate or incurvate base (Coe 1964). Stratigraphic evidence in the North Carolina Piedmont suggests 4000 B.C. as the probable beginning for the Guilford phase. Coe (1964: 51) suggests that this phase differs from the preceding Morrow Mountain by the appearance of notched, chipped axes and, perhaps, the disappearance of unifacial tools.

The common distribution and density of these point forms throughout the Coastal Plain and Piedmont would suggest a greater population and extensive pattern of land use. With the exception of Lake Spring (Miller 1949), Theriault (Brockington 1971) and Cal Smoak (Lee and Parler 1972) sites, a few sites in the area of the Savannah River Plant have been excavated and produced evidence of the Middle Archaic. Little is known of the Middle Archaic assemblage for the Coastal Plain region aside from the ubiquitous hafted bifaces (projectile points).

Ten Middle Archaic components, 8 Kirk and 2 Stanly-Morrow Mountain, were recorded during the general reconnaissance of the Savannah River Plant (Hanson, Most and Anderson 1978). As in the case of the Early Archaic sites, these were distributed in all major environments.

Late Archaic (3000-1000 B.C.)

Within the prehistoric sequence of the Savannah River Valley, the Late Archaic is perhaps the best examined cultural period stressing its importance in understanding the initial development in ceramic technology.

The most noticeable change in tool assemblages from those of the Middle Archaic is the addition of fiber-tempered pottery. Radiocarbon dates from White and Rabbit Mounts suggest that these are the earliest ceramic sites in North America (Stoltman 1972, 1974). Data representing this period have been excavated from 24 sites along the Savannah River from the lower Piedmont to the Atlantic Ocean. These sites are discussed by Stoltman (1972) in great detail, especially with reference to the presence of fiber-tempered pottery. Among the more important of these sites, because of the availability of radiocarbon dates, are Stalling's Island (Claflin 1931; Fairbanks 1942; Bullen and Green 1970), White's Mound (Phelps and Burgess 1964), Rabbit Mount (Stoltman 1974), Bilbo (Williams 1968: 152-197), Dulany (Williams 1968), and Sapelo Island (Williams 1968). Other sites include Refuge (Williams 1968: 198-208), Lake Spring (Miller 1949), Chester Field (Williams 1968: 208), Daws Island (Hemmings 1972), Walthour (Caldwell 1952: 314), Meldrim (Williams 1968: 182-183), and Oemler (Williams 1968: 182-183).

At several of these sites, both ceramic and pre-ceramic occupations are recognizable. The presence of fiber-tempered ceramics at sites of the Late Archaic is restricted to what Stoltman (1974: 19) refers to as the Stallings II and Stallings III phases. Basically, these two phases are distinguished from each other by the presence of only plain fiber-tempered ware in the Stallings II Phase as opposed to the occurrence of decorated ware in the Stallings III Phase. Dates of 2,750±150 B.C. and 2,500±150 B.C. at Stalling's Island were derived from the pre-ceramic occupations (Stallings I). Charcoal from a pit at the bottom of the ceramic horizon of that site dates the beginning of Stallings II at 1,780±150 B.C. Earlier dates of ca. 2500 B.C. have been recorded at the Rabbit Mount Site (Stoltman 1972).

Associated with these sites is a variable lithic industry best represented at Stalling's Island, Rabbit Mount, Bilbo, and Lake Spring (Stoltman 1972: 45). The raw materials range from slate to chert depending on the local availability of these materials. Savannah River points dominate the assemblage with numerous unifacial tools, grinding tools, cruciform drills, large nonhafted bifaces, steatite "netsinkers," chipped adzes, bannerstones, ground axes, and steatite bowls (Stoltman 1972: 46-47). This diverse assemblage of tool types is complemented by various antler, bone, and shell tools found at Rabbit Mount and Stalling's Island (Stoltman 1972).

Stallings I has basically the same assemblage as the other two phases except that it lacks ceramics. Some changes in projectile point morphology are recognizable between the pre-ceramic and ceramic phases. The large, broad-stemmed points of the pre-ceramic are replaced by smaller, more contracting-stemmed forms in Stallings II (Bullen and Green 1970: 13; Keel 1976). These later points are called Otarre points (Keel 1976).

Stoltman (1972, 1975) has synthesized the most recent information available on the Late Archaic in the Savannah drainage and has suggested a riverine adaptation focused on shellfish with some upland occupation and resource utilization. Diverse faunal assemblages, massive shell middens, and numerous features and diverse tool assemblages are present at some large riverine sites, indicating relatively sedentary human populations (Hanson 1981: 8).

Based on the distribution of sites for the Late Archaic, there does not appear to be a major distinction in settlement patterns between the three phases; indeed, the phases may be simply taxonomic distinctions based on ceramics without any relevance to settlement or subsistence patterns. As in the other Archaic periods, sites tend to focus on large drainages and are often found within the floodplains of rivers on alluvial rises or mounts. Shellfish were heavily utilized as were mammalian fauna (Stoltman 1974). Excavation of sites has focused on the large shell-bearing locations that may be large riverine base camps, but little information is available for upland Late Archaic sites.

The known Late Archaic occupation of the Savannah River Plant is represented at 10 sites, the majority (6 sites) of which are situated on floodplains and terraces (Hanson, Most and Anderson 1978: 121-122). These sites are generally large and high in artifact content. On the other hand, the four upland sites contain relatively fewer artifacts and tend to be smaller than the terrace-floodplain sites.

Early Woodland (1000 B.C. to A.D. 1)

The Woodland Period has been defined by Willey (1966) as a general period during which ceramics, burial mounds and agriculture were common; however, this definition is based primarily on artifactual traits, the most common of which is ceramics. As mentioned in the description of the Late Archaic, ceramics are known from the Savannah River area well before the 1000 B.C. date given here. Stoltman (1974: 20-21) simply states that the Early Woodland is defined on the basis of sand-tempered ceramics for the region in the absence of definitive proof of mounds or agriculture. For this reason, the use of the term Woodland is useful only as an heuristic device for relative chronological purposes. The discussion of the various Woodland phases that follows will provide a general understanding of the variation in ceramic style and settlement patterns associated with the ceramic time indices.

Determination of the exact starting dates for the Early Woodland period in the Coastal Plain has been confused by similarities between many of the fiber-tempered and sand-tempered wares. The major problem arises with the Thom's Creek/Awendaw types, which are sand-tempered, punctate design types similar to the fiber-tempered Stallings III ceramics. Other designs common on these ceramics are simple stamping and incising (Phelps 1968). South (1973) has grouped these Thom's Creek ceramics and those of the later Refuge complex into a Formative ware group association with those of the Stallings II and III phases. This latter grouping may best characterize the general transition between the two groups of ceramics since the only real basis for separation is the fiber temper/sand temper attribute. Ceramics of both temper types occur within Rabbit and Clear Mounts at Groton Plantation in similar contexts, furthering the contention that the sand-tempered types are transitional (Stoltman 1974: 215).

Within the Savannah drainage system, the locations of Thom's Creek and Refuge sites appear to be similar to those of the Late Archaic. Stoltman (1974: 215,216) has mentioned that the Early Woodland ceramics occur in both floodplain-terrace and upland associations. This general pattern would seem a reasonable expectation for the Savannah River Plant because of the similar environmental contexts in the two localities.

Beyond the ceramic assemblages, little is really known of the Thom's Creek and Refuge phases, especially in terms of lithic artifacts. This paucity of information makes any inferences concerning the first half of the Early Woodland inconclusive. The overall similarity between Stallings sites and Thom's Creek/Refuge sites may provide some evidence to support a functional similarity argument although this is only conjecture at this time.

Deptford Phase evidence, in contrast to the preceding phases, has been recovered from sites on the Atlantic and Gulf Coastal Plains from North Carolina to Florida to Alabama. Milanich (1972) has provided the most comprehensive examination of the Deptford Phase throughout its geographic range. This study views the Deptford Phase as a non-agricultural economy dependent on intensive hunting and gathering. It is most readily identified in the archeological record by sand-tempered ceramics with linear check-stamped, simple-stamped, and check-stamped designs (Milanich 1972; Caldwell and Waring 1939).

Within the Savannah River region, Deptford is well represented by evidence from the Bilbo Site (Williams 1968: 152-197), the Deptford Site (Williams 1968: 140-151), the Refuge Site (Williams 1968: 198-208), White's Mound (Phelps and Burgess 1964), and the Groton Plantation sites (Stoltman 1974; Peterson 1971). The majority of information concerning the Deptford Phase in the Savannah River region concerns ceramics with only minimal reference to the associated assemblages. The only general associations present at these sites are small triangular projectile points, small-stemmed projectile points, shell and bone ornaments and tools, and assorted flake tools. Milanich (1973), however, suggests that Deptford sites have diverse lithic assemblages similar to those found in the Late Archaic with the exception of point types. This limitation in the information base for assemblages of Deptford can be traced to a rather single-minded concentration of most investigators on the ceramic development of the Deptford ware group with little attention to the other characteristics of the assemblage. Milanich (1972) must be credited with one of the only efforts directed at the reconstruction of the entire lifeway associated with the Deptford ceramic pattern; however, much of his information and results are focused on the coastal region and the Gulf sub-region that are far removed from the Savannah River.

The spatial distribution of Deptford sites has been investigated at Groton Plantation with the conclusion that the Deptford ceramic sample is distributed equally between the floodplain and upland (Stoltman 1974: 237). This pattern of increased use of the uplands is believed to correlate with an increasing dependence on the biotic resources of non-floodplain environments. Thus, one may expect to find Deptford ceramic sites in the areas of the plant removed from the swamp, such as the terraces and banks along the major streams.

In summary, there is a stylistic change in ceramic design that is correlated with a general change in settlement pattern during the Early Woodland period. This period is one of transition from the floodplain-oriented subsistence base in the Late Archaic to a more diffuse subsistence base in the Woodland, evenly distributed in most environmental contexts. The known settlement pattern present on the Savannah River Plant supports this conclusion in that sites of moderate and high artifact frequency and size occur on terraces and floodplains while those of smaller size and lower content occur in the uplands. This pattern suggests an increased use of the uplands indicative of a more diffuse subsistence base (Hanson, Most and Anderson 1978).

Middle Woodland (A.D. 1 to 700)

Most cord-marked ceramics with sand temper are included in the Wilmington Cord Marked (or Wilmington Heavy Cord Marked) type described by Caldwell and Waring (1939) and Stoltman (1974). Although sherd temper is considered to be a major attribute of this type (Caldwell and Waring 1939), Stoltman (1974: 25) argues that sand-tempering can be considered within the range of temper variability for the type since all other characteristics of the ceramics found at Groton Plantation fit the description. Basically, Wilmington is identified by a predominance of coarse cord-marked ceramics within the Savannah River area.

Sites that contain Middle Woodland ceramics within the Savannah drainage range from the mouth of the river to the Fall Line. These include Oemler, Walthour, Meldrim, Cedar Grove, Deptford Bluff, Greenseed Field, King's New Ground Field, White's Mound, Rabbit Mount, Clear Mount, and several others in Groton Plantation (Stoltman 1974: 24-27). Information from these sites primarily concerns ceramics with the notable addition of mound associations (Stoltman 1974) in several cases. Within the Groton Plantation survey, the majority of the ceramic sites occurred within the upland province in contrast to the preceding periods.

Little is known of the assemblages associated with the ceramics of this phase, but data from the Groton Plantation study allow for some understanding of the general settlement pattern. Stoltman (1974: 214-215, 236-241) concludes that since almost 80% of the Wilmington ceramics recovered in the survey were found in the uplands, a concentration on upland resources was the base of the subsistence technology, including some form of slash-and-burn agriculture. Although this is a conjecture based on minimal evidence, the strong association of these ceramics in the non-floodplain environment would indicate a shift in settlement and possibly subsistence patterns. If this is the case, then the Middle Woodland should be a well-represented period within the plant because of the large area of upland composed of terraces and the Aiken Plateau.

Although a distinction could not be readily made between Middle and Late Woodland sites on the Savannah River Plant because of a lack of good diagnostic artifacts, the arrangement of these sites mirrors the pattern at Groton Plantation (Hanson, Most and Anderson 1978). Sites of these time periods are scattered throughout the Savannah River Plant.

Late Woodland and Mississippian (A.D. 700 to 1700)

These two general periods have been combined because of a general lack of distinction between the ceramics of the Savannah I and II phases in the area of the study. The diagnostic ceramic type of the Savannah I Phase is Savannah Cord Marked (or Savannah Fine Cord Marked) defined by Caldwell and Waring (1939), while Savannah Complicated Stamped, Savannah Check Stamped and Savannah Burnished Plain are considered as diagnostic of the later Savannah II Phase (Stoltman 1974: 27-31). The problem arises from the lack of exclusiveness in the two ceramic distributions, i.e. Savannah Cord Marked almost always occurs with the latter types. Thus, from about A.D. 700 to 1200, the Savannah ceramic wares predominate without a great deal of distinction.

The Savannah phases are documented at sites from the Fall Line to the Atlantic Coast. Hollywood Mound, which was partially excavated by DeBaillou (1965) and Thomas (1894), is located near Augusta, Georgia, on the Savannah floodplain. The site contains all types of Savannah Ware ceramics associated with a large, multi-staged temple mound (DeBaillou 1965: 6-10). Although other sites with Savannah ceramics are known from the middle Savannah River, only Lawton Field (Moore 1899) has any published documentation. In the vicinity of Savannah, Georgia, the work of Waring (Williams 1968) and subsequent research during the Works Progress Administration period (Caldwell and McCann 1941) has yielded several sites of this Late Woodland-Early Mississippian period.

Deptford, Haven Home ("Indian King's Tomb"), and Irene are the best documented of these estuary region sites. Due to the rich cultural deposits contained within these sites, (e.g. burials, grave goods, whole vessels, mounds, beads, and other exotic material culture), the information base is much better than for earlier periods. The first two sites mentioned, Deptford and Haven Home, contain a limited series of Savannah ceramics and are used by Stoltman (1974: 27-29) to characterize the Savannah I Phase. Both sites contain burials and large accumulations of artifactual debris. Only the Savannah Cord Marked and burnished types occur at these sites, in association with earlier Wilmington ceramics. Unlike most earlier sites, Haven Home and Deptford contain numerous burials indicating a more concentrated mortuary practice than was previously known for the Savannah Area. This development appears to be continued and elaborated in the following phases.

Research by Moore (1899) and Caldwell and McCann (1941) has revealed the nature of development in the Mississippian culture at the Irene site. This complex mound center documents the ceramic chronology from Savannah phases through the Irene Phase. Within the eight construction episodes at the Irene temple mound, ceramics of the Savannah phases are present in all levels, being gradually replaced by Irene ceramics in the final stages of the occupation (Caldwell and Waring 1939; Caldwell and McCann 1941: 43-46). Associated artifact assemblages for the Savannah phase occupation at Irene are unclear because of the pre-excavation disturbance at the site. Thus, one is faced with only a ceramic type description of the Late Woodland-Early Mississippian time period consisting of the Savannah Ware of complicated stamped and burnished sherds. Since only ceremonial sites have been excavated, and distributional inference would be misleading except to note Stoltman's comment that there was a "trend toward population nucleation (near floodplains)" (1974: 243), one may add to this the increased occupation of the estuarine area surrounding the mouth of the Savannah.

The Irene Phase has received greater attention in recent times along the coastal area of Georgia (Pearson 1977; Caldwell 1971). This phase, until most recently, has been defined by ceramics and mound complexes (Caldwell and McCann 1941; Caldwell and Waring 1939). Diagnostic ceramic indicators of this final Mississippian phase in the Savannah region are Irene Filfot Stamped, Irene Plain and Irene Incised (Caldwell and Waring 1939). Associated with these ceramics are mounds, flexed burials, shell ornaments, and some artifacts typical of the Southern Cult, a pan-Southeastern ceremonial complex of late Mississippian times. Irene evidence of subsistence reflects a reliance on corn, large mammals, fish, shellfish, and avifauna (Caldwell and McCann 1941).

Pearson's study of the coastal Irene settlement-subsistence pattern offers insight into the diverse subsistence base during the late Mississippian on Ossabaw Island (1977). The general results of the study indicate a structured settlement hierarchy composed of four site classes that correlate strongly with access to diverse environmental-resource zones. Smaller sites were associated with areas of less environmental variability while the large sites were located to provide maximal access to multiple resources (Pearson 1977: 96-98). Although this study examines an island-estuary situation, the value of the results is that the nature of late Mississippian settlement is more complex than the situation suggested by earlier results. In the context of the Savannah River drainage, Irene Phase sites must be examined with respect to diverse settlement structure and complex subsistence strategies. Previous work on the Savannah River Plant (Hanson, Most and Anderson 1978) located only five sites of the Mississippian Period. Four of these occurred on the terraces of the Savannah River while only a single site was recorded in the uplands.

Prehistoric Background Summary

Gradual changes throughout the Holocene have resulted in changes in the resources available in the Savannah River area to prehistoric man and thus in his strategies to adapt to these changes.

The location of Paleo-Indian remains in this area suggest the focalization of food procurement on megafauna. Michie (1977) implies that sites on the margins of rivers would be the most favorable for these animals and thus a concentration of Paleo-Indian subsistence efforts for their procurement.

The Early Archaic period is accompanied by a warming climate and the exploitation of a wide range of plant and animal resources. A more diffuse subsistence strategy relying on the seasonal use of a great variety of resources scattered over a greater number of microenvironments is reflected by the first intensive use of upland areas within the Savannah River Plant boundaries (Brooks and Hanson 1978: 9). This environmental diversification is accompanied by a gradual diversity of tool assemblages needed to accomplish these new procurement tasks.

The Middle Archaic represents a continuance of this trend. Middle Archaic components are almost evenly divided between the different microenvironments recognized for the Savannah River Plant (Brooks and Hanson 1978: 9).

Evidence for the Late Archaic also demonstrates a very diffuse subsistence strategy but with an increased emphasis on riverine resources. Shellfish became abundant and were heavily used for the first time (Stoltman 1974). Artifact assemblages were much more diverse than in previous periods including for the first time large numbers of ground stone tools, grinding tools, and both ceramic and steatite vessels.

The presence of diverse faunal assemblages, massive shell middens, diverse tool assemblages, and numerous features at some riverine sites indicates the first relatively sedentary populations. Stoltman (1972, 1974) suggests a largely riverine adaptation with some upland utilization.

Sites on the Savannah River Plant do fit this pattern. Hanson and Brooks (1978: 10) recognize that the sites of the uplands within plant boundaries seem to contain fewer artifacts and be smaller than the terrace-floodplain sites.

The Early and Middle Woodlands represent a gradual lessening of reliance on floodplain resources. Hanson (1981: 12) suggests that a relative depletion of riverine aquatic resources caused by changes in river gradients and population growth prompted by reduced mobility resulted in the gradual reliance on upland resources. The Early Woodland sites on the Savannah River Plant seem to be more evenly distributed between the riverine and upland environments (Brooks and Hanson 1978: 12) and reflect an increased use of the uplands, suggesting a more diffuse resource base than the Late Archaic (Hanson, Most and Anderson 1978). Middle Woodland sites seem to be restricted to the uplands (Hanson, Most and Anderson 1978). Stoltman (1974: 214-215, 236-243) suggests a concentration on upland resources and perhaps some form of slash-and-burn agriculture.

The Late Woodland and Mississippian periods seem to be a continuation of the Middle Woodland settlement pattern. Use of terraces and floodplains take precedence over sandhills, but more use of the uplands is apparent than in the Late Archaic and Early Woodland periods.

Historic Overview for Steel Creek

The first recorded exploration of the Carolina coast was in 1521 by a Spanish Captain in the employ of Lucas Vasques de Ayllon, a superior judge of Espanola. After several years of delays, Ayllon brought a group of settlers to the Carolina coast in 1526. Fever, a slave uprising, mutiny and Indian attacks brought an end to the settlement after only a few months.

In 1540, Hernando De Soto passed through South Carolina on an as yet undetermined route. Twenty-one years later the French, under the command of Jean Ribaut, tried to establish a colony in the Port Royal Sound area, calling it Charlesfort. This French attempt lasted less than a year; a mutiny brought an end to its short life. In 1566, the Spanish erected the first of many forts on Parris Island, and a city, known as Santa Elena (South 1979, 1980). The settlement lasted until about 1587 when it was finally abandoned, although there continued to be Spanish missions along the lower South Carolina coastal area, especially in the Edisto River mouth area.

The first serious English attempt at colonization began in 1670 at Charles Towne. By 1680, English traders were operating at Savanno Town, which later became Fort Moore. When Fort Moore was built about 1715-17, the area along the Savannah River opened up for settlement. The fort, and the rangers who patrolled the Savannah River, gave new frontier settlers relative safety from Indian attack. Act 433, passed in 1721, partially entitled "...for the Better settling the Frontiers of this province," mentioned settling the Three Runs area of the Savannah River. According to the act, no person was to raise cattle on the western side of the Savannah. This was enacted so that Carolina would become better settled and because settlers on the Georgia side could not readily join forces for their mutual defense at Savanno Town/Fort Moore (Cooper 1838: 122-126).

After the Yamasee War in 1715, the area between Fort Moore and Orangeburg opened up for settlement. The settlers could now enjoy relative safety from attack by Indians. This area became the frontier, as did other parts of the state until about 1740 when more settlers and townships began claiming land for more intensive farming and grazing purposes.

> The most promising grazing areas were the Savannas and cane swamps west of Orangeburg in the Forks of Edisto, around the headwaters of the Salkehatchie River, and between the Salkehatchie and Savannah Rivers. There were cowpens elsewhere, to be sure, but this was the "classic" cowpen area (Dunbar 1961: 128-129).

This area remained the "classic" cowpen area until after the Revolutionary War, when more settlers began farming and stray cattle became a menace to the crops.

European settlement of the central Savannah River area began in the mid-1730s with the origins of Augusta and New Windsor. The area of New Windsor, opposite Augusta, with Fort Moore at its center, was thinly settled.

Euro-American settlement of the Three Runs Area probably began in the 1750s. The Proprietary/Royal government considered the Savannah River Valley as the frontier/border between Spanish Florida and English Carolina from 1670 to the founding of Georgia. Early records show that from 1690 English fur traders used several locations just below Augusta as trading centers with the Indians. The earliest trading center is recorded as Savanno Town (later to become Fort Moore), occupied by various tribes, but specifically by Shawnee at different times. The Proprietary/Royal government entreatied with many tribes to take up residence along the Savannah River as a buffer to warn of approaching Spanish, beginning with the Westoes in 1670 through Yamassee, Yuchi, Appalachians, Appalachicolas, Shawnee, and ending about 1775 with the final departure of the last band of Chickasaws. After the Yamassee War in 1715, the government set up a system of frontier forts; two were located on the Savannah River. The first was at Savanno Town (named Fort Moore), located where U.S. 278 crosses the Savannah River; the second was Fort Prince George, located at Palachicola Old Town (just NW of where S.C. 119 crosses the Savannah River). Fort moore served also as an Indian trading center until the development of Augusta's Indian trading center and Galphin's trading post at Silver Bluff (McDowell 1955; McDowell 1970).

Fort Prince George served as an outpost for about 20 years. The main objective of the Rangers stationed there was to guard the river. They would sail or row a piraque up to Fort Moore and down to Savannah (Ivers 1972, 1974; McDowell 1955).

From the time of the first English fur traders in the area, buckskins and fur pelts became the most valuable commodities from Cherokee and Creek traders. Obviously the furs were not obtained free; the government, in order to keep the Indians friendly, regulated the trade of furs for goods. Carolina Indian traders did not just trade in Carolina, but pushed westward to trade in both French and Spanish territories inn Florida and Alabama. The Carolina fur traders were perhaps the most aggressive traders in North America.

With the founding of Augusta, about 1735, the Carolina fur trade began to decline. Settlers brought cattle and farming into the Three Runs area. However, before farming could begin, the land had to be cleared. Not to waste their efforts, the early settlers cut trees and in turn manufactured pitch and tar. For a number of years, processed meat and naval stores (pitch and tar) were the chief exports from the area.

Until the formation of New Windsor township in 1733, there were few settlers in the Barnwell/Aiken area near the Savannah River. The Royal government used many methods to bring settlers into the area: bounties for settlers, free land and pamphlets were written to entice settlers. Two of the more famous pamphlet writers and those responsible for many immigrants (mostly from Switzerland) were Johannes Tobler and Jean Pierre Purry. Tobler helped bring settlers to New Windsor, while Purry brought settlers to Purrysburg in the mid-to-late-1730s and after.

Beginning in 1736, a trickle of German-Swiss moved into the area. Johannes Tobler, with his family and 50 other Swiss families, set out from Switzerland for Carolina (Cordle 1939) to settle the New Windsor area. In 1572, Tobler started printing the *South Carolina and Georgia Almanac*. Although not printed every year, it was the first literary adventure in the Carolina back country (Meriwether 1974: 179). This portion of the back country was slowly settled and had its detractions as well as attractions.

> New Windsor...had achieved a reputation for ungodliness. Land in the region was not productive, and New Windsor's principal source of income was derived from the Indian trade. George Galphin, who established a base at Silver Bluff a few miles below Fort Moore, carried on a thriving business with the Creeks from about 1750 to the Revolution (Wright 1976: 87).

Indian problems in the late 1750s and early 1760s (the French and Indian War) detracted from the area's appeal. Creeks at times would rob cowpens and drive away settlers and slaves (Meriwether 1974: 73). Indian treaties in the mid- and late-1760s brought a peace to the area and settlers came in larger numbers. Settlement in the Savannah River Plant area began along the Savannah River above the swamp on the Sunderland Terrace. From there settlement advanced along the more fertile zones of the plant; the stream valleys and lowlands went first. The sandy uplands, for the most part, would not be densely settled for another hundred years.

The settlement of Georgia took a somewhat different turn. It was not until Oglethorpe landed at Yamacraw Bluff in 1733 that Georgia began to be settled (McCall 1909: 21). In 1733, a treaty with the Creek Indians granted the Crown "all the lands and territories as we (the Creeks) have no occasion to use" (McCall 1909: 259). The territories specified were "all the lands between the Savannah and Altamaha rivers, extending west to the extremity of the tide water..." (McCall 1909: 25). Along the Savannah

River, settlement was slow; until the Treaty of 1763, people settled only slightly above Augusta (McCall 1909: 208), as problems with the Creek Indians held progress to a minimum.

The Revolutionary War was the next hindrance to new immigrants. Although the Savannah River Plant area itself saw no real action, Augusta was besieged three times by the American forces. In 1781 battles around the plant area included Wiggins Hill and Beech Island (McCrady 1901: 552). Vince's Fort, on Lower Three Runs Creek, was evacuated by Rebel forces upon hearing of the approach of Tory troops (McCrady 1901: 476). Rebel and Tory groups in the area surged back and forth, burning each others houses and scaring away others (Brown 1894).

With the end of the Revolution, the area once again received new settlers and large tracts of unimproved and unclaimed land began to be cleared for crops. Although farming practices differed greatly, the majority of farmers cultivated large tracts of land with little or no thought to fertilizing, or contour farming. The land quickly became worn out and the farmer would either move on to a new farm or open up a new tract of land (Sosin 1967: 173). Eli Whitney, near Savannah, and Robert Watkins, in Elbert County, Georgia, improved on older cotten gins (Watkins 1796: 1), helping cotton to become a major cash crop in the pre-Civil War years. Prior to the regional rail system, cotton and tobacco were transported to market by river carriers, either poleboats or steamboats.

Immediately after the Revolutionary War, Winton County (Aiken, Allendale, Barnwell and Edgefield counties) was formed and a court system set up that administered the area. From 1786 to 1789, the formative years of Winton County, the court ordered roads to be built, and local landowners were ordered to oversee its construction and maintenance. One such road, 38BR286, was ordered to be constructed on 19 October 1786. This was the road from Silver Bluff to Mathews Bluff, crossing Steel Creek either on Stephen Smith's or Bartlett Brown's land by the Steel Creek Bridge (Fig. 2) (Holcomb 1978).

By the time Mills Atlas was first printed (1825), there were 11 mills operating in the Three Runs area (Fig. 3). According to Mills Atlas (Fig. 3) Steel Creek supported at the time three mills: Dunbar's Mill (38BR288), Dunbar and Sweat's Mill (38BR112) and Milledger's Mill (38BR269). There is still some contention as to the location of Milledger's Mill. Stephan Smith owned land in the same area and, according to his will, had a mill on lower Steel Creek, which fits nicely with 38BR269 (Holcomb 1978). Unfortunately, no plat of Smith's property has been located.

With the coming of the Civil War, agricultural production slowed, as it did in most of the South. With most able bodied men in the army, there were few to keep the plantations running efficiently, especially towards the end of the war. Research to this point implies that Federal troops were probably in the area during Sherman's march from Savannah to Columbia (Barrett 1956), but whether or not they did damage to area plantations is unknown.

The era of reconstruction brought an end to the southern antebellum lifestyle, as the end of slavery brought difficult times to southern

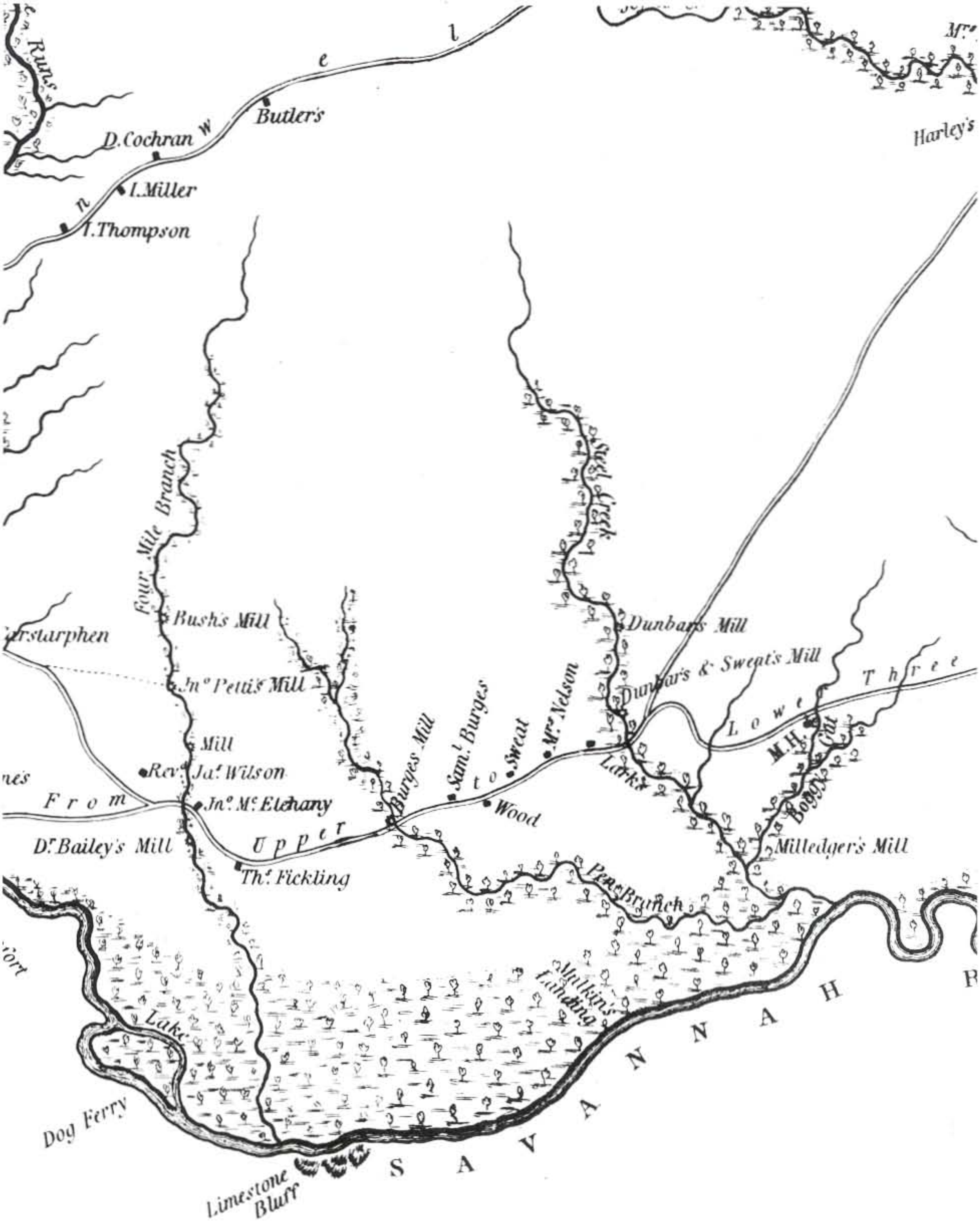


Figure 2: The Steel Creek area from Mills Atlas, 1825, showing the general locations of the mills and roads.

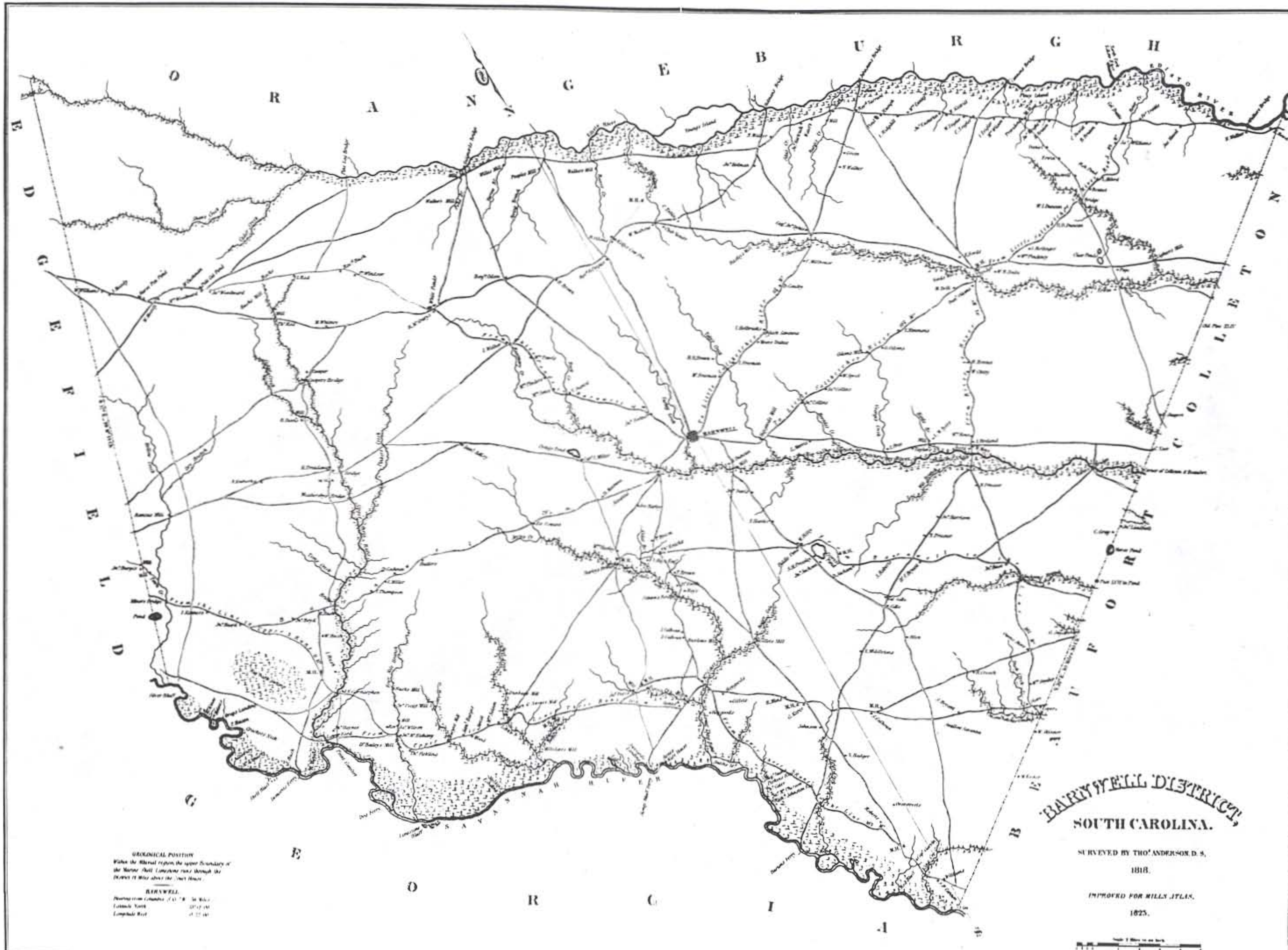


FIGURE 3. Barnwell District in 1825, from Mills' Atlas (1825).

planters. Because it was no longer profitable to run large plantations when the help had to be paid, large plantations were broken up into smaller units for tenant farming. Better transportation and mechanization that would make farming on a large scale by individual landholders profitable were still in the future.

Once the railroads built tracks through the plant area, small towns along their routes and crossings sprang up.

> Ellenton was born when the Charleston and Western Carolina Railroad was built in the 1870s. The section that ran from Charleston, South Carolina, to Augusta, Georgia, cut through Robert Jefferson Dunbar's plantation near his big three-storied home where the superintendent of construction, Mr. Millett, boarded. He became so charmed with Mr. Dunbar's attractive nine-year-old daughter, Ellen, that he requested the company to name the station near the Upper Three Runs neighborhood for her (Cassels 1971: 3).

By 1900 the Savannah River Plant area could boast of having nine small towns or communities (Ellenton, Dunbarton, Hawthorne, Donora, Hattieville, Robbins, Meyers Mill, Greenland, and Bush), and seven of these had rail connections. Population figures for Silverton township in Aiken County indicate a population increase in 1900, but a decrease in 1910. Fourmile township in Barnwell County decreased during that same period. Ellenton's population rose steaddily from 1890 to 1910 (Bureau of the Census 1913). Once the railroads connected stations near enough for planters to economically transport their staple crop to the railroad, then river transport was no longer necessary. The railroads cut the time of transporting goods to the Augusta market. The ease of using rail transport would have allowed these late-nineteenth-century planters to move further from the river. Area farmers probably brought crops for shipment to Savannah either to Point Comfort, near Ellenton, or to Stoney Bluff Landing, near the mouth of Lower Three Runs Creek. Once the railroads came through the area, river transport all but died.

Blacks left the plantations when their former masters were unable to provide them with food or work. Blacks, at least in Georgia, began moving to the cities by the thousands (Brooks 1914: 16), and others moved westward.

By 1912 the Talatha Telephone Company and the White Pond Telephone Company were operating in the Savannah River Plant area (Caughman 1912: 361, 365, 370). The Ellenton area was served by the Cassels Telephone Company; however, research has not yet determined the period and area served. In 1929, the town of Dunbarton signed a 30-year franchise with the South Carolina Power Company for electrical power. In 1929, there was a 50KVA hydro-electric power station owned by the town of Ellenton, named Western Carolina Oil and Power Company, and served a territory with a population of 620 (S.C. Power Rate Investigating Committee 1931). The company existed until about 1936. The dam was known as Cassels Pond and had a back-up gas engine generator. By 1938, Ellenton and Dunbarton were on the transmission line from Barnwell (Public Service Commission Map 1938).

During World War I, large scale migration of rural southern Blacks to the urban North resulted in large Black ghettos (Kellogg 1977: 310). This migration was caused in part by the fact that land farmed in the South could no longer support them and the northern cities offered a promise of industrial employment. This migration left many southern tenant farms empty and fields fallow. At this time landowners began planting their fields with quick growing pines. By the late 1920s and 1930s landowners were leasing land to lumber companies for 5 to 20 year periods and allowing these companies to set up saw mills on their property. Timber harvesting became a viable alternative to cash crops, such as corn, cotton and asparagus, which were not very productive. After the lumber company leases ran out, the land apparently went back to cultivation.

Until ca. 1735, the Three Runs area was visited only by English traders from Charles Towne, seeking furs from the nearby Indian inhabitants of Savanno Town. As can best be deduced from available records, actual settlement of the Three Runs area began in the late 1730s by Europeans with Royal Grants to the land. The area was sparcely settled until the end of the Revolutionary War. It was not until the 1820s-1830s when the area became more densely settled and most farmable land was under cultivation. With the end of Reconstruction, even the xeric uplands were settled. At the end of World War I, a portion of the Black population moved to the northern cities seeking employment. Because of this migration north, the larger tenant-farmed plantations began to become unprofitable and declined. Before the Korean War began, several of the area's tenant plantations were barely keeping up agricultural production. Probate hearings indicate that, at least on Ashley Plantation, the tenant dwellings were almost beyond repair and that instead of paying rent the renter was repairing the old tenant dwellings while the owner was trying to grow tobacco and taking in boarders. The general population and agricultural decline of the area was one of many factors leading to selection of this region for the construction of the Savannah River Plant.

ENVIRONMENTAL BACKGROUND AND HUMAN ADAPTATION

Introduction

Human systems, regardless of their level of technological complexity, have been subject to general and specific nuances of the environments in which they have operated. In order to establish the environmental framework within which human populations adapted in the vicinity of the Steel Creek watershed, this background is provided. Two types of environmental information are provided: 1) a paleo-environmental overview, which presents the general reconstruction of late Pleistocene and Holocene conditions within the southeastern Atlantic Coastal Plain and 2) a discussion of the Steel Creek watershed in terms of specific elements of the effective environment partitioned into microenvironmental zones. These reconstructions are not a first attempt in the region (cf. Hanson and Most 1978), and they are not offered as a comprehensive statement of the total environment. Rather, the reconstructions are presented in terms of the effective environment (i.e. the variables in an environment that affect humans).

Paleo-environment Reconstruction

This presentation of extant information of the general paleo-environment has been drawn from research conducted in the southeastern Atlantic Coastal Plain over the past 20 years by investigators attempting to document the evolution of flora in response to changing climatic conditions (Watts 1975, 1980; Watts and Stuiver 1980; Bond 1971; and Whitehead 1963, 1965 and 1973). Additional information was obtained from the work of Goodyear, Hosue and Ackerly (1979) which provides a general southeastern synthesis of available research within an archeological context. The majority of the research used to document the trends in ancient climates was conducted in Georgia, Florida and North Carolina, areas which offered suitable preservation of pollen, stratigraphy and datable material to establish chronological ordering (Watts 1975; Watts and Stuiver 1980; Bond 1970; and Whitehead 1965 and 1973). A single study based on sediments and pollen in South Carolina was conducted by Watts (1980) at White's Pond, near Columbia. Across this Atlantic Slope region, the general vegetational history has been documented to be similar. To characterize the general trends in the region, Table 2 synthesizes the key studies. The following discussion correlates directly with the tabular summary.

Full Glacial (25,000 - 15,000 B.P.)

Pollen studies at White's Pond, South Carolina, (Watts 1980); Bob Black and Quicksand Ponds, northwest Georgia (Watts and Stuiver 1970); Pigeon Marsh, northwest Georgia (Watts 1975); and Singletary and Bladen Lakes (Whitehead 1965, 1973) indicate a full glacial climatic condition in the region, which was xeric and cold. Throughout the Piedmont and Coastal

TABLE 2

GENERALIZED PALEO-ENVIRONMENTAL RECONSTRUCTION FOR THE TERMINAL PLEISTOCENE AND HOLOCENE

EPISODE	CLIMATE	VEGETATION	DATES AND SAMPLE LOCATION
Full Glacial (25,000-15,000 B.P.)	Much colder and drier than present	Jack pine, spruce, herbs with a small occurrence of deciduous tree species.	White's Pond, S.C. 19,100-12,810 B.P. (Watts 1980)
Late Glacial (15,000-10,000 B.P.)	Warmer and moister than glacial; cooler and moister than present.	Oak, hickory, beech, and hemlock.	White's Pond, S.C. 12,810-9,500 B.P. (Watts 1980) Pigeon Marsh, Ga. 13,000-10,800 B.P. (Watts 1980) Singletary Lake, N.C. 11,000 B.P. (Watts 1975) Bladen Lake 11,000 B.P. (Whitehead 1965, 1973)
Post Glacial (10,000 B.P.-present)	Early post glacial (10,000-7,000 B.P.) was A continued warming trend accompanied by increased moisture.	Oak and hickory maximum. Sharp decline in beech and increase in gums.	White's Pond, S.C. 9,500-7,000 B.P. (Watts 1980) Bladen Lake, N.C. (Whitehead 1965)
	Later post glacial (7,000 B.P.-present) continued warming with gradual dessication.	Oak and pine. Pine increases relative to the decreasing oaks. Modern vegetation patterns develops by 7,000 B.P.	Okefenokee Swamp, Ga. 5,200 B.P. (Bond 1971) White's Pond, S.C. 7,000 B.P. (Watts 1980)

Plain provinces of the region, cold-adapted vegetation composed of predominantly spruce and jack pine characterizes the pollen records. These species, accompanied by less common oak and ironwood, suggest a much colder and drier climate than exists today (Watts 1980: 326).

Late Glacial (15,000 - 10,000 B.P.)

A trend toward increased deciduous species marks this climatic episode as indicated by an abundance of oak, beech, hickory, black walnut, hemlock, hazelnut and ironwood (Watts 1980). These species reached a peak in occurrence during the period between 12,810 and 9,500 B.P. at White's Pond (Watts 1980). Spruce and jack pine greatly declined across all sample areas (Watts 1975, 1980; Watts and Stuiver, 1970; and Whitehead 1965). The oak/hickory/hemlock/elm vegetation pattern extant during this period reflects a relatively warmer and moister climate than existed during the full glacial (Watts 1980: 326). It is during this climatic episode that the first well documented human occupation of the region occurs.

Post Glacial (10,000 B.P. - Present)

During the early Holocene segment of this period (10,000-7,000 B.P.), the oak and hickory vegetation pattern reached a maximum density and distribution throughout the region. Walnut, hemlock and hazelnut disappear from the pollen record. By 9,500 B.P., the occurrence of hickory and ironwood species had greatly declined compared to previous high levels. Replacing these species were sweetgum and blackgum, which accompanied the more persistent oaks (Watts 1980; Watts and Stuiver 1970). The changes in vegetation prior to 7,000 B.P. suggest several episodes of rapid warming accompanied by increased moisture.

By 7,000 B.P. a major change in climate probably began as indicated by a pine maximum and concomitant rapid decrease in the percentage of gums (Watts 1980). Combined with the persistent oak vegetation, the pine suggest an overall drier climate than existed earlier in the Post Glacial (Watts 1980; Whitehead 1965: 390). Studies by Watts (1980) and Bonds (1971) indicate that this pattern of mixed pine and oak represents the initiation of both modern climatic and vegetation conditions in the region. From this time forward, the nature of environmental variability does not register in the pollen studies.

Reconstructed Environments

As indicated in the preceding section, the general vegetative pattern in the southeastern Atlantic Slope has been basically similar over the past 7,000 years with the exception of areas altered by the economic pursuits of Euro- and Afro-American populations. Given a similar climate and overall vegetation pattern, it is possible to reconstruct the local environmental situation in the Steel Creek watershed that existed since about 5000 B.C. The purpose of such a reconstruction is to examine the local variability in elements of the effective environment and to use this variability to predict the nature of human settlement and subsistence behavioral patterns. Such an investigation assumed that human behavior such as subsistence activities were directly related to the availability of natural resources.

The Steel Creek watershed offers an excellent laboratory for the examination of variability in human settlement-subsistence patterns in that the local environment varies widely from xeric uplands to hydric swamps within a distance of 10 km. On the regional level, the study area falls within the Upper Coastal Plain physiographic province, which is composed primarily of unconsolidated sediments of Cretaceous age or younger (Langley and Marter 1973: 17). This general area falls within the Oak-Hickory-Magnolia Forest Ecotone described by Shelford (1963: 86-88). It is characterized by a pine to scrub oak succession in xeric areas and a more stable oak-hickory sere in hydric contexts. The climate common in the region is best described as mild, with monthly temperature averages ranging from 48°F in January to 81°F in July and an annual mean humidity of 70% (Langley and Marter 1973: 65). Precipitation averages 47 inches with extremes ranging from 28.8 inches to 73.5 inches (Langley and Marter 1973: 73).

The general topography of the study area can best be described in relation to the surface geological structure composed of two major components: the Aiken Plateau and the Pleistocene Coastal Terraces. Composed of sandy sediments, the Aiken Plateau dominates the study and generally ranges in elevation from 250 feet to 400 feet within the Savannah River Plant. Below the 250-foot elevation level are three coastal terraces: the Wicomico (below 100 feet), the Sunderland (between 100 and 170 feet), and the Brandywine (between 170 and 250 feet). The Wicomico is essentially the Savannah River floodplain of the recent era that floods on a seasonal basis. The Sunderland is a generally level feature that parallels and bounds the Savannah River swamp. Finally, the Brandywine is a well-dissected terrace that forms the transitional zone between the Aiken Plateau and the Sunderland (Siple 1967).

The specific topography of the study area results from the erosive activity of streams on the plateau and terraces. Steel Creek and its tributaries have deeply entrenched the basin forming relatively steep slopes in the uplands (Fig. 4). Above the 150-foot contour, the presence of the terraces all but disappears due to this erosive activity. In general, the topography of the watershed is most appropriately described as steep and dissected with river and small stream terraces adjacent to the channels.

Soils found in the watershed are denoted in Figure 5, which indicates the distribution of soil types described by Aydelott (n.d.). Although the study of soils in the area was conducted for the specific purpose of forest management, the general information obtained can be used in the evaluation of the soils for a reconstructed vegetation pattern. The association of specific soil types in topographic zones will form the basis for delineating microenvironmental zones.

Microenvironmental Zones

Using the information provided by Aydelott (n.d.) for soils and the topographic variability present in the Steel Creek watershed, 4 microenvi-

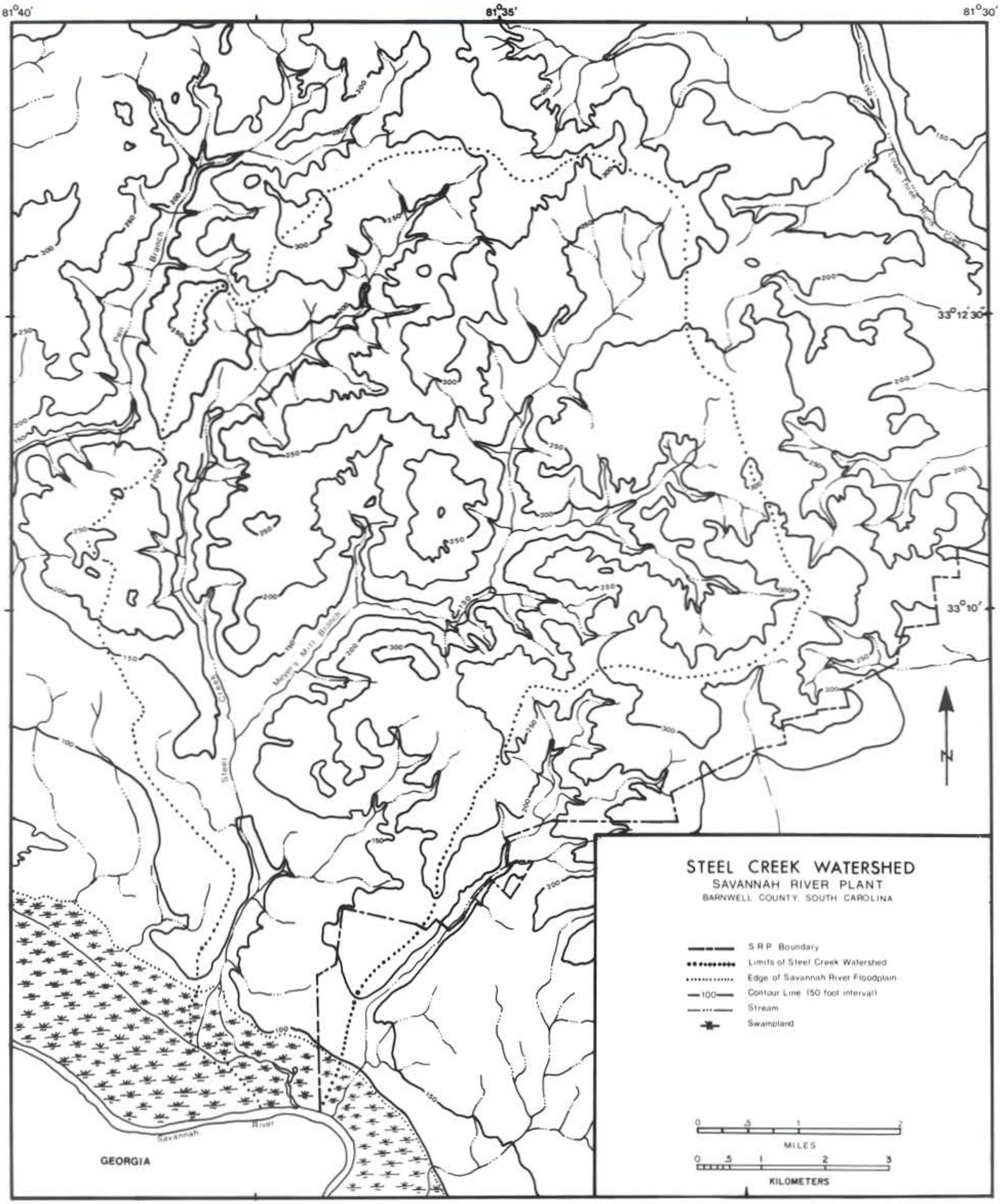


Figure 4: Topographic map of the Steel Creek Watershed.

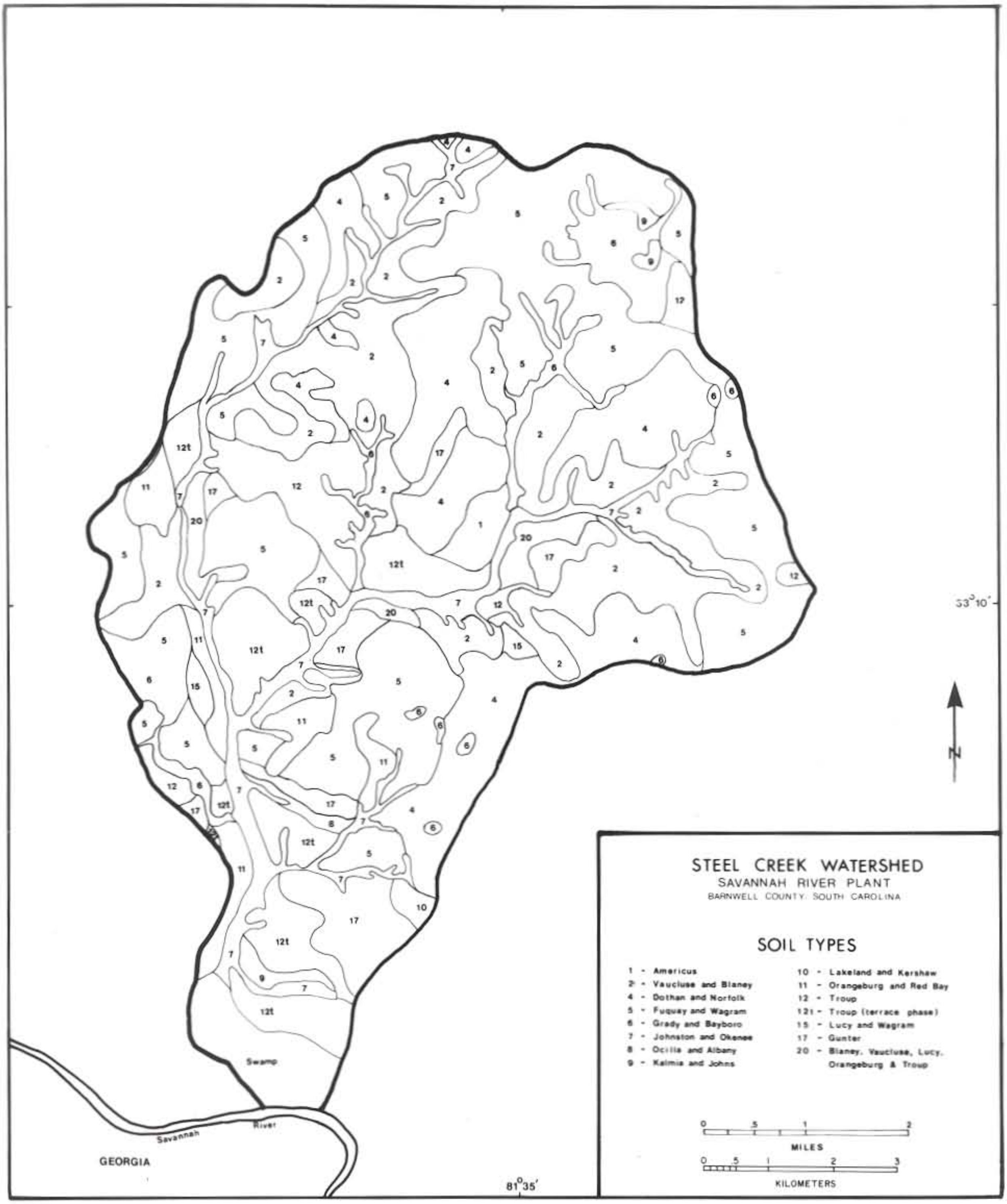


Figure 5: Soils map of the Steel Creek Watershed.

ronments were defined for use in the examination of settlement variability (Fig. 6). These conform with basic vegetation communities defined and described by Beavers et al. (1973) and Langley and Marter (1973) as the xeric, mesic, small stream hydric, and large stream hydric. However, since the emphasis in this study is upon the effective environment (i.e. those elements of the environment suitable for human exploitation), the zones defined below differ to some extent. Each of the microenvironmental zones is presented in terms of six key variables: elevation range, general topography, soils, vegetation, hydrology, and food resources.

Zone I: Upland Sandhills

Elevation range: 170 to 400 feet a.m.s.l.

General topographic context: Primarily large interfluvial ridges that gradually slope to the south. This zone is composed mainly of areas within the Aiken Plateau and the Brandywine terrace.

Soils: All soils in the upland sandhills zone are predominantly sandy and include the following types: Americus, Vaucluse and Blaney, Dothan and Norfolk, Fuquay and Wagram, Orangeburg and Red Bay, Troup, and Gunter and Lakeland.

Vegetation: Very xeric on the high ridgetops grading to less xeric on the terminal ridgenoses and slopes. Referred to as a Xerosere by Shelford (1963: 86-87), this community contains longleaf pine, turkey oak, blackjack oak, bluejack oak, southern red oak, short-leaf pine and loblolly pine (Beavers et al. 1973: 34-35). More mesic stands contain a higher proportion of oaks relative to pines. According to Barry (1980: 97-116) this range in xericity accounts for three graded vegetation systems: the turkey oak barrens, the scrub oak barrens and the xeric pine-mixed hard-woods. Overall, this zone contains a very high density of small red oak group species which are excellent mast producers.

Hydrology: Small streams with one or two branches are characteristic of this zone. Also, some Carolina Bays and springs occur in the zone. However, the water resources are not year-round and would prohibit long term prehistoric occupation in the zone.

Resources: A partial listing of food resources occurring within the upland sandhill zone is presented in Table 3 by month of avail-ability. Overall, the resouces of this zone are the least dense of any zone, with the exception of oak mast. The low ground water content and related vegetative xericity result in broad differences in seasonal resources productivity. Of particular interest is the high red oak group ("bitter") acorn productivity in the zone. This resource, unlike white oak group ("sweet") acorns are more predictable from year to year and much more effi-cient to procure and leach (cf. Reidhead 1976: 229-236). Further these acorns are able to resist worms due to their extremely tough shells. Finally, these acorns are more reliable as a re-source because they do not germinate until late winter (Fowells 1965: 557-620; Olsen 1974: 692-701). This latter point makes the

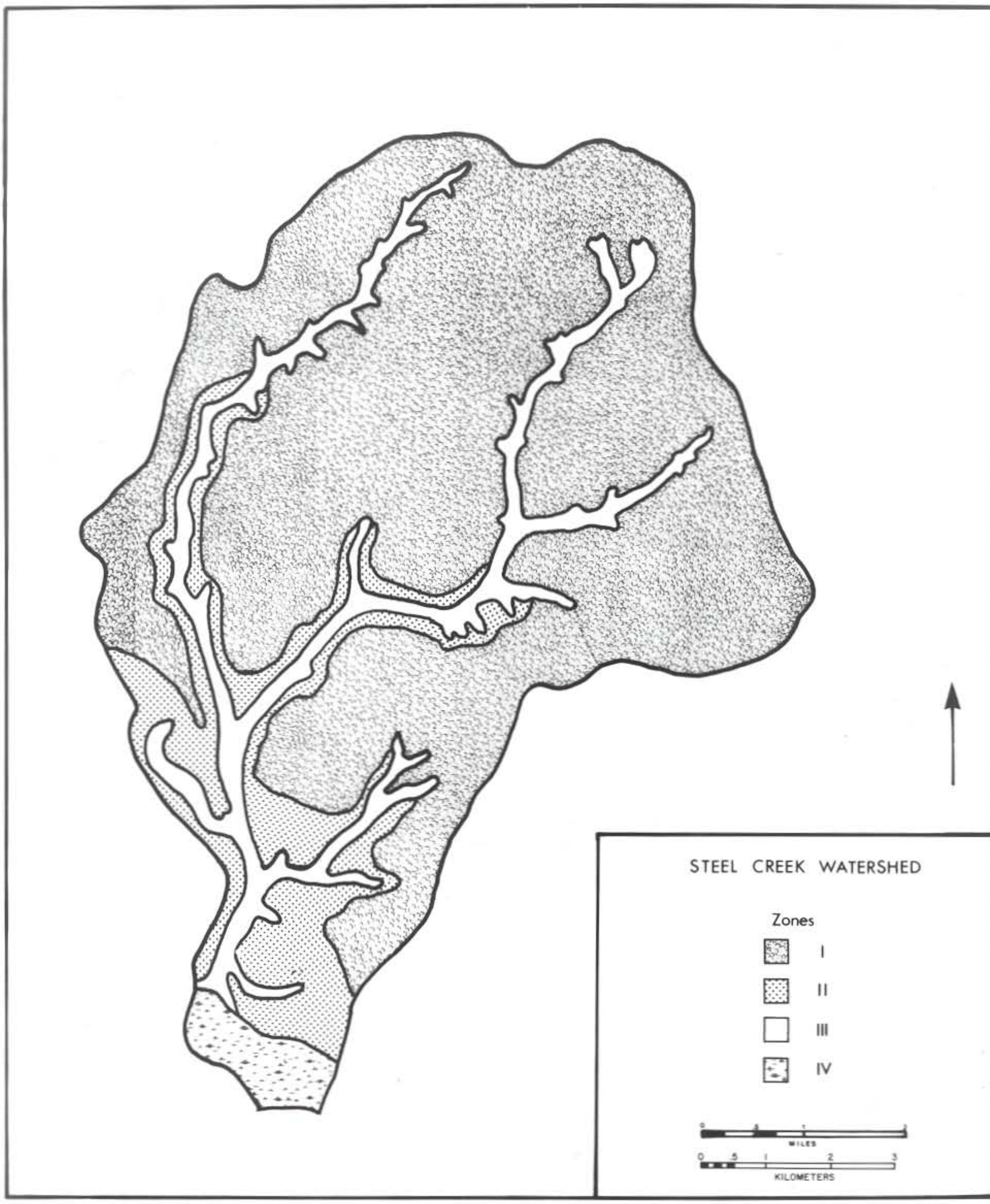


Figure 6: Map of the Steel Creek watershed showing the four environmental zones.

TABLE 3

SEASONAL AVAILABILITY OF FOOD RESOURCES IN THE UPLAND SANDHILL ZONE
(Barry 1980; Batson and Kelley 1955; Beavers et al. 1973; Hoy 1953;
Langley and Marter 1973; Shelford 1963; and U.S. Forest Service 1971)

ZONE I: UPLAND SANDHILLS

	SEASONAL AVAILABILITY											
RESOURCES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Fox Squirrel (*Sciurus niger*)	x	x	x	x	x				x	x	x	x
Gray Squirrel (*Sciurus carolinensis*)	x	x	x	x	x				x	x	x	x
Raccoon (*Procyon loctor*)	x	x	x	x	x	x	x	x	x	x	x	x
Opposum (*Didelphis marsupialis*)	x	x	x	x	x	x	x	x	x	x	x	x
Cottontail rabbit (*Sylvilagus* sp.)	x	x	x	x					x	x	x	x
White-tail deer (*Odicoileus virginianus*)	x	x	x						x	x	x	x
Passenger pigeon (*Ectopistes migratorius*)	x	x								x	x	x
Quail (*Colinus virginianus*)	x	x	x	x	x	x	x	x	x	x	x	x
Eastern box turtle (*Terrapine carolina*)				x	x	x	x	x	x	x	x	
Red oaks (*Quercus* sp.)*	x	x	x						x	x	x	x
Post oak (*Quercus stellata*)									x	x	x	
Hickories (*Carya* sp.)**	x	x								x	x	x
Persimmon (*Diospyros virginiana*)								x	x	x		
Panic grass (*Panicum maximum*)							x	x	x			
Muscadine (*Vitis rotundifolia*)								x	x			
Berries***						x	x	x	x			
Prickly pear (*Opuntia* sp.)						x	x					
Greenbriar (*Smilax rotundifolia*)					x	x	x					

* Red Oaks are *Q. veluntia*, *Q. marilandica*, *Q. cinera*, *Q. margaretta*, *Q. falconata*, *Q. laevis* and *Q. nigra*.

** Hickories are *C. glabra* and *C. tomentosa*.

*** Berries are blackberry (*Rosaceae rubrus*), dwarf huckleberry (*Gaylussacia dumosa*) and huckleberry (*Vaccinıum occidentalis*).

TABLE 4

SEASONAL AVAILABILITY OF FOOD RESOURCES IN THE MESIC TERRACE ZONE
(Barry 1980; Beavers et al. 1973; Canouts 1971; and U.S. Forest Service 1971)

ZONE II: MESIC TERRACES

RESOURCES	SEASONAL AVAILABILITY											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Fox Squirrel (*Sciurus niger*)	x	x	x	x	x				x	x	x	x
Gray Squirrel (*Sciurus carolinensis*)	x	x	x	x	x				x	x	x	x
Raccoon (*Procyon loctor*)	x	x	x	x	x	x	x	x	x	x	x	x
Opposum (*Didelphis marsupialis*)	x	x	x	x	x	x	x	x	x	x	x	x
Cottontail rabbit (*sylvilagus* sp.)	x	x	x	x					x	x	x	x
White-tail deer (*Odicoileus virginianus*)	x	x	x	x	x	x	x	x	x	x	x	x
Passenger pigeon (*Ectopistes migratorius*)	x	x								x	x	x
Quail (*Colinus virginianus*)	x	x	x	x	x	x	x	x	x	x	x	x
Turkey (*Meleagris gallopavo*)	x	x	x	x	x	x	x	x	x	x	x	x
Eastern box turtle (*Terrapine carolina*)				x	x	x	x	x	x	x	x	
Red oaks (*Quercus veluntia & Q. falcata*	x	x	x						x	x	x	x
White oaks (*Quercus stellata & Q. alba*)									x	x	x	
Hickories (*Carya glabra & C. tomentosa*)	x	x								x	x	x
Beech (*Fagus grandifolia*)									x	x	x	
Persimmon (*Diospyros virginiana*)								x	x	x		
Panic grass (*Panicum maximum*)						x	x	x	x			
Roots (*Orontoum aquaticum & Discorea villosa*)				x	x	x	x	x				
Berries (*Vaccinum cornynbosum*)						x	x	x	x			
Prickly pear (Opuntia sp.)						x	x					
Greenbriar (*Smilax rotundifolia*)					x	x	x					
Greens (*Peltandra virginica & Arundinara* sp.)				x	x	x	x					
Seeds								x	x	x		

red oak group acorns important deer fodder during the winter which results in higher deer density in the upland sandhills during winter.

Zone II: Mesic Terraces

Elevation range: 90 to 170 feet a.m.s.l.

General topographic context: Gradually sloping terrace (Sunderland) between the upland sandhills and the Savannah River swamp. Also included in this zone are the terraces along Steel Creek (Fig. 5). Small backwater swamplands intrude into this zone in the vicinity of the Savannah River swamp.

Soils: The predominant soil types situated in this zone are Kalmia and Johns, Ocilla and Albany, Troup (terrace phase), and Lucy and Wagram. Although sandy, these soils are very high in biotic productivity making the zone an excellent locus of food resources.

Vegetation: Although the vegetation in this zone varies depending on edaphic conditions, the predominant community type is best described by Beavers et al. (1973: 34-35) as mesic. Barry (1980: 138-140) refers to this community as the mesic mixed hardwood and pine type which is characterized by a white oak dominance with loblolly pine. Other species common to this zone are black oak, swamp chestnut oak, willow oak, mockernut hickory, pignut hickory, water oak, sweetgum, persimmon, ash and dogwood. The actual composition of this community varies due to successional and soil parameters. Shelford (1963: 87) states that succession usually results in an oak-hickory climax.

Hydrology: Ranging from small headwater streams originating in the sandhills to the larger tributaries of the Savannah River, the water resources near this zone are quite variable. Of importance is the fact that this zone is always very near permanent streams and the associated bottomland, thus making Zone II an excellent intermediate location for access to both the upland sandhills and the small stream bottomlands (see Fig. 6).

Resources: Table 4 presents some of the key wild food species which would have been present in the mesic terrace zone. The entire range of terrestrial fauna occur in this zone making it an excellent hunting area during all but the winter season. The lack of good winter mast density in the zone due to low frequencies of red oak species may have made hunting a less productive pursuit compared to the upland sandhill zone. Other resources occur in moderate to high densities in this zone during most months of the year except winter. For this reason food procurement in the winter may have required either seasonal movement of residence to other resource zones or logistic foraging to these zones (Binford 1980). Overall, given the optimal location of this zone between two other zones and its moderate to high food resource productivity during most of the year, prehistoric inhabitants of the area would have most probably used this zone as a locus of long term residence and/or base camps.

Zone III: Tributaries and Bottomlands

Elevation range: 85 to 225 feet a.m.s.l.

General topographic context: This zone crosscuts the elevation ranges of the upland sandhills and mesic terrace because it follows the course of Steel Creek and its tributaries from the Savannah River swamp to the sandhills. Although the total gradient of the stream system drops 140 feet in approximately 12 miles, no radical drops in the channel are present. This gently falling stream system thus has a moderate floodplain/bottomland along most of its margin. Since the streams and the bottomland are so mutually associated, the two are combined in this zone.

Soils: Two soil types, Johnston and Okenee, and Grady and Bayboro, are most common in this zone. Each type is composed on finer-textured soils than found in other zones in the watershed and as a result is capable of holding more moisture. High nutrient values of these soils contribute to a very high productivity (Aydelott n.d.).

Vegetation: Beavers et al. (1973: 34-35) and Langley and Marter (1973) refer to the community in the bottomlands of this zone as the small stream hydric. This community situated along narrow to moderately wide floodplains is characterized by black gum, sweetgum, yellow poplar, green ash, red maple, loblolly pine, and scyamore. In the middle reaches, a large stream hydric pattern exists which includes willow oak, water oak, overcup oak, nuttal oak, swamp chestnut oak, cottonwood, and sycamore. Near the junction with the Savannah River, swamp bald cypress and tupelo gum would have been common. A recent vegetation gradient study of the nearby Upper Three Runs Creek bottomlands by Whipple (1978) indicates that the actual composition of the community is closely associated with water levels and periodicity of flooding. Generally most oak species tend to lack water tolerance and occur away from areas regularly flooded or saturated. Overall, the vegetation in this zone grades along the water course from moderately useful food species in the upper reaches to highly useful food species in the middle reaches to poor food resources in the lower reaches.

Hydrology: Throughout the zone, water from flowing permanent streams is abundant. Small streams and springs provide continuous supplies of water in all areas. From a point roughly 2 miles upstream from the Savannah River swamp, the streams are narrow enough during nonflood seasons to have permitted the use of wiers and nets for procurement of fish.

Resources: In terms of year-round productivity and overall resource diversity, this zone has the potential to have provided the greatest amount of food to prehistoric hunter-gatherers (see Table 5). The cover provided by the dense bottomland vegetation and substantial forage provided by shrubs, vines and herbs (Whipple 1978) are capable of supporting very high deer populations. Whitetail deer tend to spend part of the day in this type of zone and the remainder in the terrace and sandhill zones. This diurnal pattern of movement would make Zone III a superb hunting area. Other fauna of both the terrestrial and aquatic types are moderately dense in the zone relative to Zones I and II. Fish, as indicated in Table 6, are available on a permanent basis in the streams, while anadromous species enter the streams during the late winter and spring. Procurement of fish would have been a simple matter of placing either nets or wiers across the channel and collecting the catch regularly.

Vegetal resources would have been fairly dense in the zone and have provided a major dietary contribution. At least seven oak species, hickory, grass seeds, berries, and shoots are common in the zone. The only problem with the vegetal resources may have been the relative small area encompassed by the zone. Only 12% of the total land area in the Steel Creek watershed is in zone III, and about 35% of this area is water. Thus, although the diversity and density of this zone are high, the zone could not have provided the total dietary requirements of any population above a minimal number, at least for vegetal resources.

Finally, the presence of resident and migratory avifauna in this zone would have made it more important to prehistoric inhabitants. Twenty-three species of avifauna spend at least a portion of the year in this zone and all of these birds are edible (Table 5). Although these may not have been a critical resource due to possible problems in procurement, the fowl could have been an excellent caloric and protein source.

In summary, the food resources that would have been present in the tributary and bottomland zone are the densest and most diverse of any other zone in the region. The potential for near year-round exploitation would have made the zone very important as an energy extraction location. However, due to the presence of poorly drained soils and regular flooding, it is unlikely that human groups would have resided within the zone. Rather, by situating in the mesic terrace zone (II) near Zone III, they would have had dry living areas and ready access to the streams.

Zone IV: Savannah River Swamp and Savannah River

Elevation range: 80 to 90 feet a.m.s.l.

General topographic context: The swamp zone is an irregular floodplain which has varied relief due to channel movements and associated geological formation processes. In the area at the mouth of Steel Creek the swamp is about 1.5 miles at its widest point. Throughout the swamp are a series of elevated ridges which parallel the river and form seasonal dry land. Thus, the topography of swamp, rather than being uniform as suggested by the topographic maps of the areas, consists of ridges and swales.

TABLE 5

SEASONAL AVAILABILITY OF FOOD RESOURCES IN THE TRIBUTARIES AND BOTTOMLAND ZONE
(Barry 1980; Beavers et al. 1973; Canouts 1971;
Langley and Marter 1973; and U.S. Forest Service 1971)

ZONE III: TRIBUTARIES AND BOTTOMLAND

	SEASONAL AVAILABILITY											
RESOURCES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Canecutter rabbit (Sylvilagus aquatica)	x	x	x	x					x	x	x	x
Beaver (Castor canadensis)			x	x	x	x	x	x	x	x		
Squirrels (Sciurus nigra and S. carolinensis)	x	x	x	x	x				x	x	x	x
Muskrat (Ondatra zibethica)	x	x	x	x	x	x	x	x	x	x	x	x
Raccoon (Procyon loctor)	x	x	x	x	x	x	x	x	x	x	x	x
White-tail deer (Odocoileus virginianus)	x	x	x	x	x	x	x	x	x	x	x	x
Passenger pigeon (Ectopistes migratorius)	x	x								x	x	x
Quail (Colinus virginianus)	x	x	x	x	x	x	x	x	x	x	x	x
Turkey (Meleagris gallopavo)	x	x	x	x	x	x	x	x	x	x	x	x
Wood duck (Aix sponsa)	x	x	x	x	x	x	x	x	x	x	x	x
Waterfowl (winter residents, 11 species)[1]	x	x									x	x
Waterfowl (summer resident, 1 species)[2]						x	x	x				
Waterfowl (transient, 7 species)[3]			x	x						x	x	
Fish (permanent, 13 species)[4]	x	x	x	x	x	x	x	x	x	x	x	x
Fish (migratory, 7 species)[5]		x	x	x								
Turtles (4 species)[6]	x	x	x	x	x	x	x	x	x	x	x	x
Red oaks (4 species)[7]	x	x	x						x	x	x	x
White oaks (3 species)[8]									x	x	x	
Shagbark hickory (Carya ovata)	x	x							x	x	x	x
Beech (Fagus grandifolia)									x	x	x	
Panic grass (Panicum maximum)						x	x	x	x			
Summer grape (Vitis aestivalis)						x	x	x				
Red mulberry (Morus rubra)				x	x	x	x					
Greenbriar (Smilax rotundifolia)				x	x	x	x					
Cane (Arundinaria sp.)				x	x	x	x					
Spicebush (Lindera aestivale)									x	x		

[1]Winter resident waterfowl consist of Canada goose (Branta canadensis), blue goose (Chen caerulescens), mallard (Anas platyrhynchos), black duck (Anas rubripes), pintail duck (Anas acuta), green-winged teal (Anas carolinensis), American widgeon (Mareca americana), shoveler (Spatula clypeata), ring-neck duck (Aythya collaris), canvasback (Aythya valisneria), hooded merganser (Lophodytes cucullatus), and oldsquaw (Clangula hyemalis).

[2]Summer resident waterfowl consists of mallard (Anas platyrhynchos).

[3]Transit (spring and fall) waterfowl consist of snow goose (Chen hyperborea), blue goose (Chen carolinensis), blue-winged teal (Anas discors), shoveler (Spatula clypeata), lesser scaup (Aythya affinis), bufflehead (Glaucionetta albeola), and ruddy duck (Erismatura jamaicensis).

[4]Permanent fish species present in Steel Creek are largemouth bass (Micropterous salmoides), chain pickerel (Esox niger), redfin pickerel (Esox americanus), warmouth (Lepomis gulosus), bluegill (Lepomis nacrochirus), pumpkinseed (Lepomis gibossus), dollar sunfish (Lepomis marginatus), spotted sunfish (Lepomis punctatus), redbreast (Lepomis auritus), redear sunfish (Lepomis microeophus), brown bullhead (Ictalurus natalus), and yellow bullhead (Ictalurus platycephalus). Also occurring are chubs (Hybopsis sp.), shiners (Notropis sp.), and darters (Etheosoma sp.).

[5]Migratory fish present on a seasonal basis in Steel Creek are striped bass (Morone saxatilis), American eel (Anguilla rostrata), American shad (Alosa sapidissima), gizzard shad (Dorosoma cepedianum), hickory shad (Pomolobus mediocris), and sturgeon (Acipenser oxrhyndhus).

[6]The four species of turtle common to this zone are the common snapping turtle (Chelhdra serpentina), eastern box turtle (Terrapine carolina), southern spiny softshell turtle (Trionyx spinifera) and the Florida cooter (Pseudemys floridana).

[7]The red oaks present in this zone are cherry oak (Quercus falcata pagodaefolia), nuttal oak (Quercus nuttali), water oak (Quercus nigra), and willow oak (Quercus phellos).

8The white oaks present in this zone are overcup oak (Quercus lyrata), swamp chestnut oak (Quercus michauxii), and white oak (Quercus alba).

Soils: No specific information exists on the soils of the swamp since Aydelott (n.d.) did not map its soil distributions nor did he elevate the productivity of the area. Generally, the sediments in the upper surface levels of the swamp are predominantly silts and sands, which are depositional in origin (Stevenson 1981). Ridge soils are sandy and moderately well drained.

Vegetation: Barry (1980) characterizes this zone as cypress-tupelo swamp which is composed of bald cypress and water-tupelo in setting with alluvial deposits and open water circulation. This vegetation system is that which dominates the Savannah River swamp swales. Other common species associated with cypress and water-tupelo are water ash, black willow, water elm, red bay, sweet bay magnolia, and American elm. On the ridge islands which are never subjected to continuous inundation by flood waters, oaks similar to those found in the mesic terrace zone are common, as are longleaf and loblolly pines. Of importance is the fact that the islands are in most cases long and narrow with not too much dry surface area. This fact would diminish their importance as oak mast procurement areas. However, the oaks are capable of supporting moderately high deer populations during the fall.

Hydrology: During most of the year the Savannah River swamp is partially flooded modern stream flow and river. Prior to the construction of the two dams in the upper Savannah River, flooding was a recurring event that inundated the entire swamp-floodplain. The water run-off from Pen Branch, Four Mile Creek and Steel Creek would have contributed to the swamp water levels. Due to this problem with flooding, the low-lying areas of the swamp would have had an impossible habitation area. The islands, on the other hand, would have afforded adequate protection from flood water to have been suitable residences during at least part of the year. Evidence from Stave Island, a large point-bar remnant in the swamp, suggests occupation during the Late Archaic and possibly the Woodland periods.

Resources: The aforementioned whitetail deer were probably an important resource procured from the swamp. Further terrestrial mammals such as bear, rabbit, raccoon, and squirrel are common. Muskrat and beaver are also very common. Although the migratory birds are low relative to Zone III, a high density of wood ducks would have provided some food value. Aquatic resources including freshwater mussels, resident and anadromous fish, and turtles are very common in the river and swamp. Procurement of these species would have been a relatively low-cost endeavor. As noted by Limp and Reidhead (1979), the netting of fish and other aquatic fauna is a very economical activity which can produce extremely high food yields for labor expended. This fact suggests that the use of this zone would have been quite great. A review of the food resource data from the Rabbit Mount site (Stoltman 1974) supports the contention that swamp resources were used extensively during the Late Archaic and Mississippian periods.

Overall, the resources of the swamp would have been available during most parts of the year (Table 6) but procurement would not always have been equally economical. High flood waters would have made focused net fishing difficult because fish would have been able to move over most of the swamp. Instead, fishing would have been best during summer when water levels were lower and the swales became small lakes, or sloughs. Terrestrial and aquatic mammal exploitation could have been quite good if access to the resources was not inhibited by flood waters. In general this zone would have had an excellent source of fish, mussels, vegetal foods, and mammals.

The Structure of the Resources and Archeological Implications

Variability in topography, hydrology, elevation, soils, vegetation and resources characterizes the Steel Creek watershed and constitutes the basis for the definition of microenvironmental zones. Each of these zones would have contained food resources for the prehistoric human occupants of the area in varying quantities during different seasons of the year. This differential availability of resources would have established a basic structure in the effective environment, that would have been a central consideration in the development and implementation of procurement strategies. As components of the strategies, activity and habitation loci would be expected to reflect the structure in the environment. Since the emphasis in the present study is upon the nature of prehistoric settlement and subsistence in the watershed, the distribution of different site types is examined in association with zones of resource production.

From the structure of the environment the following expectations can be deduced regarding the general structure of a seasonal subsistence activity system. Two of the zones would have been rather inhospitable for long-term settlement due to excessive moisture and poorly drained soils; these are the Savannah River swamp (Zone IV) and the tributary/bottomlands (Zone III). With the exception of the small islands that occur in the swamp, no habitation or large scale limited activity loci are expected in these two zones. However, due to the extremely high productivity of these zones, they are expected to have been seasonally exploited during most of the year for aquatic resources (e.g. fish, turtles, mussels and aquatic plants). Due to low water levels in the river, which would have existed during the late spring and summer (Baldwin 1973: 24; Trinkley 1974: 14), mussels and certain fish species would have been intensively exploited during these seasons. Thus given the conditions and parameters of these two environments, the expectation for human activity and the resultant archeological record is of two kinds. First, in Zone III, it is expected that sites would represent narrow activities such as fishing and hunting and that more permanent residential sites would be elsewhere. Second, sites in Zone IV would represent, at most, seasonal procurement of certain swamp resources. One possible exception to this would have been a more sedentary occupation (i.e. multi-seasonal) which seems to have occurred during the Late Archaic Period in the Savannah River as evidenced by the Rabbit Mount site (Stoltman 1974). These more sedentary occupations in the swamp zone always

TABLE 6

SEASONAL AVAILABILITY OF FOOD RESOURCES IN THE SAVANNAH RIVER SWAMP ZONE
(Academy of Natural Science of Philadelphia 1953; Barry 1980;
Beavers et at. 1973; Canouts 1971; Hoy 1953; Langley and Marter 1973;
O'Hara 1979; Stoltman 1974; U.S. Forest Service 1971; and Whipple 1978)

	SEASONAL AVAILABILITY											
RESOURCES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Canecutter rabbit (Sylvilagus aquaticus)	x	x	x	x	x				x	x	x	x
Black bear (Urus americanus)			x	x	x	x	x	x	x	x		
Gray Squirrel (Sciurus carolinensis)	x	x	x	x	x				x	x	x	x
Marsh rabbit (Sylvilagus palustris)	x	x	x	x	x				x	x	x	x
Muskrat (Ondatra zibethica)	x	x	x	x	x	x	x	x	x	x	x	x
Beaver (Castor canadensis)	x	x	x	x	x	x	x	x	x	x	x	x
Raccoon (Procyon loctor)	x	x	x	x	x	x	x	x	x	x	x	x
White-tail deer (Odocoileus virginianus)	x	x	x	x	x	x	x	x	x	x	x	x
Wood duck (Aix sponsa)	x	x	x	x	x	x	x	x	x	x	x	x
Turkey (Meleagris gallopavo)	x	x	x	x	x	x	x	x	x	x	x	x
Migratory waterfowl [1]			x	x	x				x	x	x	
Fish (permanent in swamp & river) [2]	x	x	x	x	x	x	x	x	x	x	x	x
Fish (migratory in river) [3]		x	x	x								
Mussel (Elliptio complanatii)	x	x	x	x	x	x	x	x	x	x	x	x
Common snapping turtle (Cheldra serpentina)			x	x	x	x	x	x	x	x	x	
Southern spiny softshell (Trionyx spinifera)	x	x	x	x	x	x	x	x	x	x	x	x
Florida cooter (Pseudemys floridana)	x	x	x	x	x	x	x	x	x	x	x	x
Greenbriar (Smilax rotundifolia)			x	x	x	x						
Knotweed (Polygonum sp.)						x	x	x	x	x		
Arrow arrun (Peltadra virginica)				x	x	x	x					
Panic grass (Panicum maximum)						x	x	x	x			

[1] Migratory waterfowl in the Savannah River Swamp are limited to a single species, the common loon (Gavia immer).

[2] Permanent fish species which occur in the swamp and the Savannah River on a permanent basis are bowfin (Amia calva), redfin pickerel (Esox americanus), chain pickerel (Esox niger), creek chub (Semotilus atromaculatus), white sucker (Catostomus commersoni), spotted sucker (Minytrema melanops), silver redhorse (Moxostoma anisurum), shorthead redhorse (Moxostoma macrolepidotum), smallfin redhorse (Moxostoma robustum), snail bullhead (Ictalurus brunneus), white catfish (I. catus), yellow bullhead (I. natalis), brown bullhead (I. nebulaosus), flat bullhead (I. platycephalus), channel catfish (I. punctatus), mud sunfish (Acantharchus pomotis), flier (Centrarchus madropterus), banded pygmy sunfish (Elassoma zonatum), blackbanded sunfish (E. gloriosus), banded sunfish (E. obesus), redbreast sunfish (E. auritus), pumpkinseed (Lepomis gibbosus), warmouth (L. gulosus), bluegill (L. macrochirus), dollar sunfish (L. marginatus), longear sunfish (L. megalotus), spotted sunfish (L. punctatus), largemouth bass (Micropterus salmoides), white crappie (Pomoxis annularis), black crappie (P. migromaculatus), and longnose gar (Lepisosteus osseus).

[3] Six species of anadromous fish occur in the Savannah River on a seasonal basis. These are striped bass (Morone saxatilis), Atlantic sturgeon (Acipenser oxyrhynchus), American eel (Anguilla rostrata), gizzard shad (Dorosoma cepedianum), American shad (Alosa sapidissima), and threadfin shad (Dorosoma petenense).

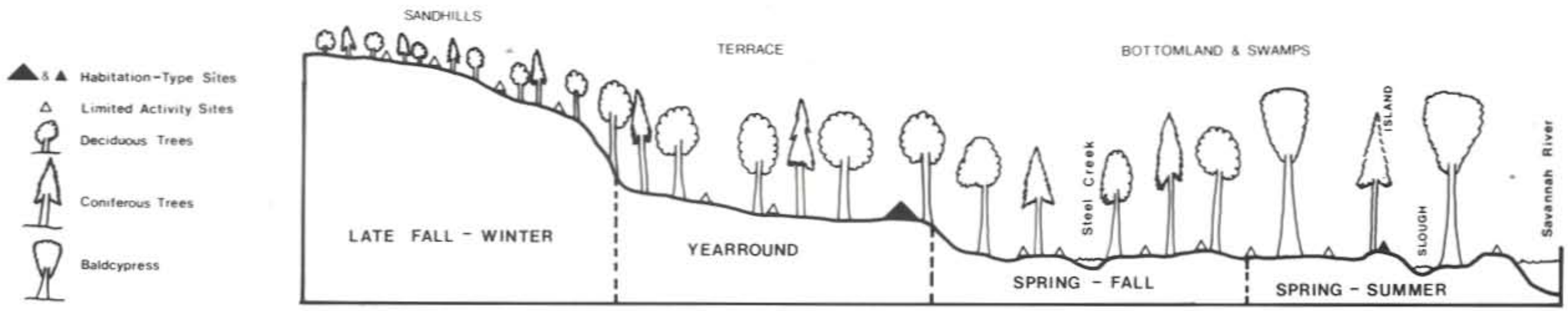
occurred on sand ridges and old point-bar remnants within the floodplain which would have afforded protection from flooding. Thus, the overall prehistoric site distribution within the swamp and bottomland zones is expected to be composed of limited activity sites representing the procurement of locally available resources.

The zone with the greatest expected probability for yielding more permanent base camp and habitation sites is the mesic terrace. Four factors support this expectation. First, this zone is highly productive during the spring, summer and fall. Second, the soils and topography in the zone would have afforded prehistoric inhabitants with dry and protected areas for dwelling. Third, all areas within this zone are within 1 km of permanent water provided by streams. Fourth, if we assume that most of the prehistoric inhabitants of the region were dietary generalist (i.e. those who selected food resources in direct proportion to their occurrence in the environment), then this zone would have been the ideal residence location during most of the year because of the central location of the zone in immediate proximity to the tributary/bottomlands and the upland sandhills. By locating more permanent base camps and habitation in this zone, prehistoric groups would have been able to follow a logistic mobility pattern (Binford 1980) to exploit the more seasonally specific zones nearby.

Finally, the resources within the upland sandhills are, for the most part, available in the highest density during the late fall and winter. Although certain fauna use this zone during the entire year, the greatest concentration of deer occurs concomitant with the high red oak mast maturity. A limiting factor in the zone is water that occurs only in small springs and intermittent tributary streams. Furthermore, the large area represented by this zone (i.e. 75% of the watershed) and relative uniformity of the resource distribution over time would have contributed to decisions regarding human exploitation patterns. Thus, given the relative lack of water, the seasonal nature of the resources, and the evenness of the resource distribution, it is expected that the upland sandhills would have been used primarily during the late fall and winter for the procurement of oak mast and whitetail deer. The archeological correlates of this activity set would be relatively small, limited-activity loci with assemblages reflecting low-activity diversity. Since the collecting of bitter oak mast would require leeching in a flowing stream (Reidhead 1976: 233-236), no evidence of acorn processing is expected in this zone, but rather in the mesic terrace and tributary/bottomland zones. Hence, the primary contribution to the archeological record would have been the hunting and meat-processing activities. These would have resulted in the deposition of broken tools, exhausted flake tools, and resharpening debitage (House and Ballenger 1976). So with these material correlates considered, the expected site type in this zone would be small lithic scatters with evidence of meat processing expressed in the assemblage. The distribution of these sites is expected to be spatially random due to the even resource distribution.

To recapitulate, the seasonal settlement model proposed above suggests that under the assumption of a general dietary selection (Cleland 1976), the exploitation within the Steel Creek watershed would have consisted of three environmentally determined components. First, aquatic resources would have been collected during the spring and summer in Zones III and IV from small camps or stations within the zones that served as specialized activity loci visited for brief periods. Residence would have been in Zone II. Second, during late fall and winter, subsistence activity would have shifted to the upland sandhill zone for the procurement of deer and acorns. Since these activities would not have required facilities or long-term processing in the zone, use of the area would most probably have been during short term visits. Again habitation during these seasons is expected to have been in the mesic terrace zone. Third, the use of the mesic terrace zone is expected to have been the most intensive in terms of habitation and daily subsistence procurement, because the zone offers a rich multi-seasonal resource base and is intermediate between the lowland and upland zones. Sites within this zone would have been due to two types of activity: 1) long-term habitation for multiple seasons with assemblages reflecting diverse activities, and 2) limited activity associated with specific resource procurement. The former type of sites would have most probably been located near the contact edge between the mesic terrace and the tributary/bottomland or Savannah River swamp because of the improved access to water and aquatic resources. The latter type of sites would reflect the general resource specific procurement activities away from the habitation sites in the mesic terrace zone. Due to the richness and diversity of resources in the zone, no specific expectations can be made for the nature of the assemblages other than an expected low artifact diversity. A generalized model of this settlement subsistence system is presented in Figure 7.

The preceding model of human land use constitutes the central focus of the prehistoric analyses that will be discussed in the report. It is through the examination of such models that archeological sites can be evaluated for significance since the models provide a relative scale by which to measure the scientific value of the archeological resources. This is not to say that only settlement subsistence models are valuable criteria for assessing sites, but only that they form a basic first step in determining the information content of sites. As the sites are better understood, certain specific questions relating to chronology, culture change, ceramic variability, and other general problem domains can be addressed.



	ZONE I UPLAND SANDHILLS	ZONE II MESIC TERRACES	ZONE III TRIBUTARIES AND BOTTOMLAND	ZONE IV SAVANNAH RIVER AND SWAMPS
KEY RESOURCES	Red oak acorns, deer, small terrestrial mammals, seeds, and hickory nuts.	White and red oak acorns, deer, small terrestrial mammals, seeds, greens, turkey, berries and fruits.	Fish, aquatic fauna, waterfowl, deer, small mammals, red and white oak acorns, greens, fruits, berries, and seeds.	Fish, aquatic fauna, freshwater mussels, small mammals, deer, greens, seeds, some acorns, and hickory.
SEASON(S) OF MAJOR UTILIZATION	Late fall and winter	Spring, summer, fall and winter	Spring, summer and fall	Spring and summer with minor use in fall
ACTIVITIES	Acorn and hickory gathering, deer hunting and processing, small game hunting, seed collecting, general foraging, and short term camping.	Acorn and nut gathering, small mammal hunting, deer hunting and processing, vegetal food foraging, food processing and storage, and habitation.	Fish procurement with spears and wiers, deer hunting, waterfowl hunting, acorn collecting, vegetal food foraging, and possible short-term camping.	Fish procurement with spears, nets, wiers, & traps, mussel collecting, some deer hunting, and general vegetal foraging.
ARCHEOLOGICAL CORRELATES	Small lithic and/or ceramic scatters, debitage indicative of tool maintenance, broken hunting and meat processing tools, sites dispersed throughout the zone, and overall low lithic assemblage diversity.	Large base camp and habitation sites near either Zone III or Zone IV, high lithic assemblage diversity, seed and nut processing tools, storage containers, debitage reflecting tool manufacture and maintenance, and some small low tool diversity sites.	Stream-edge fishing stations, fish traps and wiers, scattered meat processing sites with low tool diversity, broken hunting and meat processing tools, and a dispersed pattern of non-fishing sites.	Levee and slough edge fishing/mussel collecting stations, hunting and meat processing sites on islands, overall low tool diversity at all of these small sites, and possible large base camps on islands.

Figure 7: A general settlement-subsistence model for the Steel Creek watershed.

METHODOLOGY

Survey Methods

This survey was undertaken at the request of the U.S. Department of Energy for two reasons: to locate all archeological resources directly adjacent to the Steel Creek floodplain, and to determine whether or not those sites located would be affected by an increase in the water flow. This request limited the survey area to a stretch of Steel Creek approximately 13 kilometers long and 300 meters wide. With these restrictions in mind, the methodology that follows was adopted.

The most effective method for locating archeological resources within the survey area was for survey teams to walk along the first and/or second terrace (usually the transition zone between pine plantations and hardwoods) of Steel Creek, raking the leaf litter from ground surface in order to inspect the surface. Where there were freshly plowed firebreaks, raking was unnecessary. Site sampling methods varied with each site, but generally once a site was located, random rake tests were employed to determine site extent. If the site was within 125 meters of Steel Creek, subsurface testing was employed to determine the nature of the archeological deposition. Laboratory analysis of the artifacts recovered was geared to enable discussions of site function as opposed to other prehistoric or historic sites and to determine tool function in regard to lithic artifacts. These methods are the most reliable recovery and analysis procedures that could be employed related to the project area.

Site inventory records and artifact assemblages were examined in order to have a better understanding of site locations and site types to be expected. A check of the State-wide Inventory of Archeological Sites at the Institute indicated that 25 archeological sites were known to be located in the survey area (within 400 meters of Steel Creek). Those sites within 200 meters of Steel Creek would be revisited to determine whether or not a higher level of water flow would pose a possible danger to the site, because the impact area would be the land surface that would be affected by the 100-year-high water mark. This reduced the number of known sites to 11 that needed to be revisited.

A check of 1978 color-infrared aerial photographs revealed, first, that road access to the general survey area was excellent, but that road access to the stream margins was almost non-existent, and, second, that there appeared to be three dams and one road/bridge crossing in the same locations as those indicated on Mills' Atlas (Mills 1825).

A check of the Savannah River Project Automated Site Use System indicated that the U.S. Forest Service had recently burned several areas adjacent to Steel Creek. These burned areas offered the survey teams a great deal of visible ground surface for inspection not available in other areas.

Vegetation presented no physical problems. Since the survey was to be conducted during late winter, undergrowth was dormant and overland travel was relatively easy. Seventy-five percent of the area adjacent to the creek bottomland was in pine plantation (previous to plant acquisition it was agricultural land). The division between the pine and bottoms was distinguished by firebreaks. Some of the area was recently clear-cut that enhanced ground surface visibility.

Because 95% of the land area to be surveyed was in woods, the only method of survey that would allow for maximum ground surface visibility was rake testing. This involves the raking of leaf litter from the ground in a 2 by 2 meter area. Other methods would be employed where appropriate, such as the inspection of cleared ground (i.e. clear-cuts, firebreaks and roads).

Recent color-infrared aerial photographs were ground-truthed and access roads were investigated during a two-day period set aside for preliminary field reconnaissance. This time was specifically set aside to familiarize the survey teams with the terrain and access roads in the survey area. All roads were inspected but no known sites were revisited at this time. Team drop-off points and safety checkpoints were plotted on field maps for the intensive survey. Ten field days were set aside for the 1,250-acre survey. Another ten field days were set aside for site subsurface testing, evaluation and mapping.

To ensure adequate and reliable coverage of the impact area, it was determined that the survey would try to examine 100% of the land area up to 125 meters from the creek. In effect, each survey team raked a 2 by 2 meter area every 10 meters parallel to the stream for its entire course. The use of firebreaks and clear-cut land greatly enhanced the survey. In general, each team of two people walked along the stream terrace 10-20 meters apart, perpendicular to the stream, rake testing every 10 meters. The raking was staggered so that the ground was rake-tested every 5 meters. When a site was located, rake tests were systematically placed in order to determine site extent. Then artifacts were collected and the site recorded. Two previously unrecorded sites were located by rake testing. Four previously unrecorded sites were located in firebreaks and naturally cleared areas. Examination of firebreaks and old roadbeds helped to define the extent of four previously recorded sites.

Each site was tested by one or more methods depending upon its relationship to Steel Creek and the level of archeological documentation necessary. Sites greater than 150 meters from the stream were only rake-tested to determine their extent and archeological assemblages. Sites between 100 and 150 meters from Steel Creek were rake-tested and shovel-tested to determine their extent, content and archeological deposition. Sites that were less than 100 meters from Steel Creek were extensively tested by both surface and subsurface modes. At only one site was there no attempt to recover artifacts (38BR286). At one site (38BR288), testing uncovered no artifacts.

In summary, the survey methodology proved quite effective for locating new sites and enhancing the information for previously recorded sites.

Prehistoric Lithic Artifact Analysis

All lithic artifacts found on the Steel Creek survey were separated into six major artifact categories: debitage, hafted bifaces, other bifaces, unifaces and utilized flakes, fire-cracked rock, and other tools. The specific types of artifacts included in these groupings, and the methods used to analyze each type, follow in the paragraphs below.

Debitage

Debitage includes the waste by-products from the manufacture of chipped stone tools. Six categories of debitage were used for this survey: thinning flakes, cortical flakes, broken thinning flakes, broken cortical flakes, cortical chunks, and noncortical chunks.

Thinning flakes are small flakes of stone resulting either from the removal of flakes from a core to be used as blanks for stone tools, finishing these tools, or from resharpening these tools. These flakes are recognizable by the presence of striking platforms and scars on the vental surface reflecting the direction of percussion needed for detachment. Only whole flakes without cortex were included in this category (cortex being defined as the natural surface of the stone as it existed before human modification). Whole flakes with cortex were included in a separate class known as cortical flakes. Flake fragments are broken thinning flakes. Broken cortical flakes are separated from broken thinning flakes. Chunks include angular pieces of debitage without the platforms or scars that distinguish flakes. They are distinguishable from cores by lack of scars of detached flakes. These artifacts were also divided into cortical chunk and noncortical chunk categories. Construction of these categories was based on three properties possessed by each artifact that may provide information about the function of the site where it was found. These include the presence or absence of cortex, the size of the artifact, and the material from which it was made.

Presence of cortex: The presence or absence of large amounts of debris retaining cortex may be very important in determining the function of a site. Large amounts of cortical debitage indicate that the site was the locus of initial stages of tool production and that it was very near to the original source of raw material. A lack of decortification materials on a site suggests that later stages of tool production were the predominant lithic activities. Assuming that the cortex would be removed from partially finished tools to make them more portable, the lack of cortical flakes might suggest that the site is far away from the original source of stone. Such distinctions will allow us to recognize better the types of activities carried on at each site and to inform us of the availability of lithic resources.

Because of these relationships, cortical flakes (both whole and broken) and chunks were separated into different categories than those used for their cortical counterparts. It is assumed that cortical debitage represents very different behavior than noncortical debitage. Simple percentage comparisons of these categories were used to detect differences in behavior.

Size: Previous work by Hanson and Most (1978: 44-45) on the Talatha Unit of the Sumter National Forest suggested that flake size curves may be useful for determining site function. Larger debitage (thinning flakes) may be expected at those sites nearest quarries and may represent the initial stages of raw material reduction. These sites with finished or resharpened tools as the predominant lithic activity would have smaller thinning flakes than those sites where initial tool production occurs. House and Ballenger (1976: 94) suggest that many sites in the South Carolina Piedmont are represented mostly by butchering tools and related resharpening debitage. Evidence from the upland sandhills of the Savannah River Plant suggests that a similar relationship occurs there (Brooks and Hanson 1978: 15). That is, there would be differences in flake size between debitage from the largely single function sites found in this region and the debitage from the multifunction sites of the terraces.

A ranking system was applied to measure debris (Hanson and Most 1977). Only whole flakes were measured; chunks were not included. These are expected to occur in the earliest stages of tool manufacture (House & Wogaman 1978: 59) and to represent different human behavior than the thinning flakes. Nine size ranks were used for this survey. The smallest rank consisted of those flakes fitting into a 0-100 mm square area. Each subsequent rank was 5 mm larger on a side than the preceding one. For example, the upper limits of rank 1 was represented by a 10 x 10 mm square; the upper limits of rank 2 were defined by a 15 x 15 mm square; the upper limits of rank 3 were defined by a 20 x 20 mm square.

Raw material: The types of raw material used on a site may provide information about the movements of the inhabitants and their trade relationships with groups outside of the region. In the Steel Creek survey, only very local Coastal Plain chert was found in large amounts. This stone occurred both in thermally altered and unaltered forms. Small amounts of quartz, quartzite, slate, argillite, and rhyolite debitage were collected.

Categories of raw material distributions throughout this survey include: thermally altered chert, unaltered Coastal Plain chert, quartz, quartzite, and other. Only the chert categories produced large enough samples to make detailed statements about intersite variability within those raw material types.

Hafted Bifaces

Hafted bifaces are defined as any bifacially (i.e. flaked on both sides) manufactured artifacts with basal modification to facilitate the mounting of the tool on a handle or shaft (e.g. stemmed, notched). This artifact category represents one of the better temporal period markers available to archeologists.

Hafted biface types found during the survey are described below.

Suwanee: Suwanee points are described as "large, lanceolate-shaped, slightly waisted hafted bifaces with concave bases, basal ears, and basal grinding along the bottom and waisted edge" (Institute of Archeology and Anthropology 1980: 19). This type represents the Paleo-Indian Period.

A possible Suwanee basal fragment was found on site 38BR269. It is listed in the table as an "unknown" hafted biface (Fig. 8B).

Palmer: This is a roughly triangular biface with well-defined and corner-notches. The base is usually ground and is straight to slightly concave. Basal auricles or "ears" are typically rounded. This type's temporal association is with the Early Archaic Period (Fig. 8C).

Kirk Corner-notched: This is a roughly triangular, medium-sized biface with well-defined corner-notches and a large blade. The notches are often deep enough to form distinct barbs at the shoulders. The blade edges are often finely serrated. The temporal association of this hafted biface type is with the Early and, perhaps, Middle Archaic periods (Fig. 8G).

Kirk Stemmed, serrated: Long, narrow "dagger-like" (Coe 1964: 70) bifaces with broad, sometimes slightly expanded stems and serrated blade edges. The stems are created by deep corner-notching. Its temporal association is with the Early and Middle Archaic periods (Fig. 11H).

Morrow Mountain II: This biface has a long, narrow blade with a long tapered, round stem. It has temporal association with the Middle Archaic (Fig. 8J).

Savannah River: This is a large, broad-bladed, stemmed biface, with bases straight to concave. Flaking is random. They occur during the Late Archaic (Fig. 8L).

Otarre: This is a "medium-sized, triangular-bladed, stemmed point," (Keel 1976: 194) resulting from the percussion chipping of a large flake. The edges of the stem and base are often ground smooth. The base is often more rounded and more contracting than Savannah River points. These occur during the Late Archaic and Early Woodland periods (Fig. 8M).

Yadkin: These are fairly large, triangular bifaces with concave bases. Their association is Early to Middle Woodland (Fig. 8P).

Small Triangular points: These are triangular-shaped points with straight or slightly concave bases. These may be associated with Early Woodland, Middle Woodland, Late Woodland or Mississippian temporal phases. (Figure 8S presents one of many types that might fall in this category.)

All points were classified according to raw material and were measured. Measurements included maximum length, blade length, maximum width, one-half blade length, shoulder width, basal width, maximum thickness, and weight. Whether the biface was resharpened, broken, and/or patinated was noted.

Basal shape and base type were recorded for each hafted biface. Basal shape is the shape of the very end of the base or stem. Types included within this descriptive morphological category are straight bases, indented bases, convex bases, and unknown bases. Stem basal type refers to the overall shape of each hafted biface base.

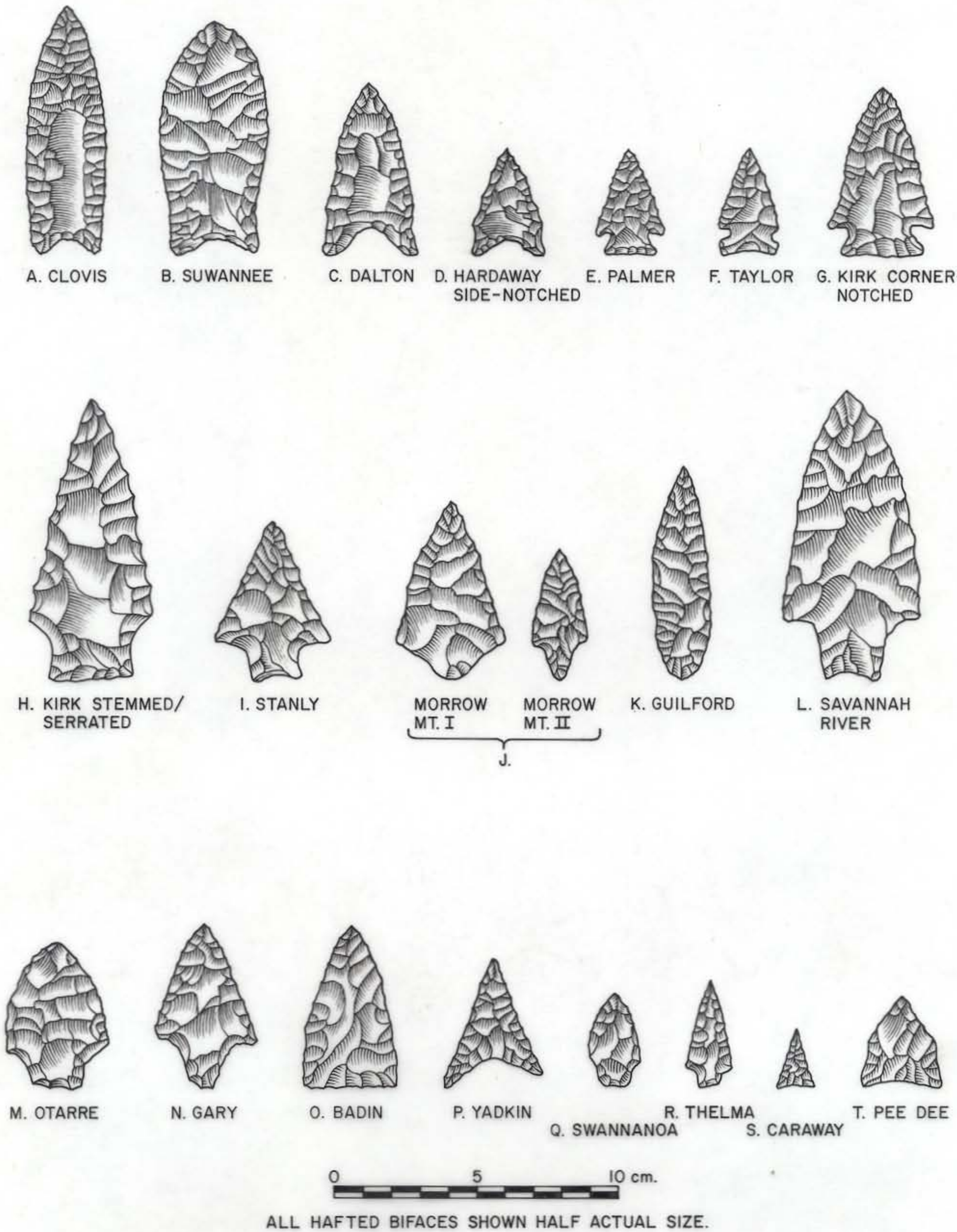


Figure 11: Diagnostic hafted bifaces.

Sub-categories of basal type used here include stemmed bases, side-notched bases, corner-notched bases, triangular bases, straight bases, and unknown bases. All of the above data will be recorded on computer so that future studies may metrically group these hafted bifaces and compare them with hafted bifaces taken from excavated context. This will better define the prehistoric chronology of the Savannah River Plant. For the present study, hafted bifaces served largely as temporal diagnostics.

Other Bifaces

Other bifaces are defined as bifacially manufactured artifacts that possess the finished flaking of a hafted biface, not the preparation for hafting (Institute of Archeology and Anthropology 1980: 29). Other bifaces are significant in that they represent early stages of tool production. Thorough examination of their distribution may result in a better understanding of the hunman behavior lying behind the procurement, manufacture, and curation of stone tools.

Studies from the South Carolina Piedmont indicated that many broken other bifaces occur on sites of initial lithic processing (House and Ballenger 1976; Goodyear, House and Ackerly 1979: 167). These represent initial stage tool blanks of hafted biface preforms broken in the early stages of manufacture. Many more are found on single function limited-activity sites associated with small debitage, located far from known quarries (Goodyear, House and Ackerly 1979: 167). Such relationships suggest that other bifaces are often carried far from their place of manufacture before being reduced to hafted bifaces.

Other bifaces discovered during the Steel Creek survey were described according to shape (rectangular, ovoid, triangular, etc.), raw material, and condition (whether it was broken or not). The presence or absence of patination and cortex was recorded. Five metric measurements (maximum length, maximum width, maximum thickness, weight, and a mean lateral angle) were made from each artifact. All these attributes and measurements were recorded for computer analysis to be used for intersite comparisons and to determine the exact composition of the artifact assemblages.

The other biface analysis used for this report concentrated on examining the distribution of Coastal Plain chert and thermally altered Coastal Plain chert artifacts throughout the various micro-environments in the Steel Creek area. Mean edge angles for both broken and whole artifacts were examined. The careful curation of other bifaces indicated by House and Ballenger (1976) and Goodyear, House, and Ackerly (1979) suggests that these artifacts may serve not only as sources of bifacial tools, but flake tools as well. Edge angle studies should demonstrate the feasibility or lack of feasibility for the proposition that other bifaces served as cores.

Unifaces and Utilized Flakes

The great majority of the stone tools found on the Steel Creek survey fall into this category. Utilized flakes are defined as "any flake with unnatural modification of one or more edges that display nicking, shearing or other suspected functional damage" and unifaces are any flake or chunk with a steeply chipped edge exhibiting flake scars 2 mm or more in length

(Institute of Archeology and Anthropology 1980: 28). Utilized flakes may have been used to achieve the same tasks as unifaces. Unifaces were intentionally retouched to stablize the work edge; utilized flakes were not.

These tool types are perhaps the most useful artifacts in the middle Savannah River valley area for recognizing activities that occurred at prehistoric sites. Wilmsen (1968: 982-987) successfully demonstrated the usefulness of edge angles in reconstructing the probable functions of flake tools. Similar analyses are attempted in this report. The use-edge form of each flake tool was described. Measurement of maximum width, maximum length, maximum thickness and weight were made when possible. The raw material and the presence or absence of cortex and patina were recorded for each artifact.

Contingency tables were constructed separating tools by raw material and by variations in edge angle and edge form. This allowed the examination of the flakes by raw material over the survey area and the tools' function at various sites (e.g. knives and scrapers). Any raw material preferences that might have existed for the manufactured of specific tool types might also be determined.

Fire-Cracked Rock

Fire-cracked rock is described in this report as "rock that has been thermally fractured from exposure to fire" (Institute of Archeology and Anthropology 1980: 29). Irregular fractures characterize this artifact class; that is, the granular, crystalline structure of the quartz or sandstone is obvious in the breakage planes. Cobble cortex, when present, is often dark brown or red, the result of extreme thermal stress. These artifacts are very difficult to recognize from rocks cracked by natural fires or by plowing. They are the hardest lithic materials to identitfy culturally.

Fire-cracked rocks do provide, however, important information about variability within prehistoric settlement patterns. House and Ballenger (1976: 36) propose that these are the remains of hearths or rock ovens that would most likely occur at the more permanent maintenance sites than at limited activities sites. Sites from the more favorable microenvironments in the region should produce the majority of these artifacts.

Fire-cracked rock collected during the Steel Creek survey was weighed and counted. These measures are used, in conjunction with other artifact data, to examine site function within the environmental context.

Other Tools

The other tool category contains all stone artifacts found on the Steel Creek survey not included in the debitage, hafted biface, other biface or flake tool categories. This class includes those artifacts that occur in too small numbers to allow for inter-site distributional studies. Each does possess, however, functions representing human activities that played significant roles in the prehistoric subsistence practices used in the region. These artifact classes are listed below.

Ground axes: One grooved, polished axe bit was found in the survey. It is a specimen with a 3/4 groove for hafting. This artifact has been broken at the groove and reused both as a chopper and hammerstone.

Metates: These are flat stones with shallow basins worn into one or both flat surfaces as a result of use as a platform for the grinding of vegetal substances. It is generally inferred that metates were used in the processing of weed or grain seeds and nuts. Because there are few types of stone artifacts easily recognizable as true vegetable processing tools, metates provide important information for the reconstruction of prehistoric subsistence practices.

Cores: Cores, lithic artifacts that served as a source for flakes, were distinguished from other bifaces by the presence of 3 or more flaked faces. Cores found during the Steel Creek survey had relatively small flakes removed, suggesting that they served largely as the source for flaked tool blanks.

Goodyear, House and Ackerly (1979: 167) suggest that the distribution of cores in the South Carolina Piedmont is similar to that exhibited by other bifaces. This evidence suggests that cores were used both at limited activity sites and at large maintenance sites as sources for expedient flake tools.

Hammerstones: These are usually round cobbles exhibiting heavy battering on one or more ends. Hammerstones may have been used for many functions, but they are particularly useful for detaching flakes from cores or bifaces.

Worked Steatite: Several pieces of worked steatite were found on this survey. Steatite, or soapstone as it is also known, received extensive prehistoric use as the source for manufacturing perforated boiling stones ("net weights"), stone vessels, atlatl (spear thrower) balance weights, and ornaments. The greatest use of steatite occurred during the Late Archaic and Early Woodland periods (cf. Coe 1964; Keel 1976). The fragments found on this survey were too small for positive identification as to function.

Prehistoric Ceramic Analysis

The surface treatment of ceramic vessels and sherds can be one of the more useful aids in deriving estimates of chronological position at post-Late Archaic sites. Combined with temper type, surface treatment should allow for an analysis of certain components. The use of surface treatment and temper type rather than formal ceramic type names (e.g. Savannah Cord Marked, Deptford Linear Check Stamp) is considered to be more useful in comparative studies, because ceramic type or ware variability throughout South Carolina is so great that a common comparative approach is necessary. Surface treatment is a readily observable attribute of sherds that does not require judgement regarding "ceramic type", yet it may demonstrate similarities and differences in the ceramic technologies as they occur within a study area or between different regions. Such basic information does not involve judgement and will provide a better basis in inter-site analysis in that it eliminates confusion caused by an overabundance of similar ceramic types. This approach to ceramics does not preclude analysis at the ceramic type level but instead focuses on certain attributes.

Temper

During the present study, the examination of decorative attributes takes more precedence than the detailed study of temper. Only two temper types have been recognized in large numbers so far in the Savannah River Plant region, fiber and sand. They, as well as surface treatments, are described below and illustrated in Figure 9.

Fiber: Fiber tempering is usually restricted in time to the Formative, or terminal Late Archaic Period. It is most easily recognized by linear carbonized inclusions in sherd cross sections and on vessel walls.

Sand: Sand tempering includes all ceramics tempered with water-rolled sandy material. The size of the sand grains can vary from large to small.

Surface Treatments and Decorations

Plain: A plain surface treatment is recognized by a smoothed texture across the entire vessel or sherd. The lack of any surface texturing is the best criterion for assigning sherds to this class. This treatment occurs during the Late Archaic, Woodland and Mississippian periods (Fig. 9A).

Punctate: This class of surface treatment is recognized by the presence of indentations on the sherd surface. These indentations, or punctations, can be made by various instruments including sticks, shell, hollow reeds, and fingers. Spacing or patterning of punctations may range from haphazard, or irregular, to carefully patterned designs. This treatment occurs mostly in the Early Woodland Period (Fig. 9B).

Linear punctate: Indentations of this surface treatment are patterned along lines where the instrument is never lifted from the clay during the formation of a row. This is also called jab and drag. This decoration is found in the Early and Middle Woodland Periods (Fig. 9C).

Simple stamped: This treatment results from the identation of the vessel surface with a linear object that leaves an even linear pattern. Examples of simple stamping are dowel impressed and split impressed patterns. The simple stamped patterns can parallel, converge or cross. Simple stamping occurs in the Early and Middle Woodland phases (Fig. 9D)

Linear check stamped: This surface treatment class is represented by sherds that exhibit a "ladder-like" pattern, formed either by a carved paddle or the notched edge of a paddle. In either case, the resultant pattern consists of regularly spaced rectilinear indentations distributed in rows. (The illustration of this treatment, Fig. 9E, shows a combination of alternating simple stamped and linear check stamped treatments). Linear check stamping may be found on Early and Middle Woodland sites.

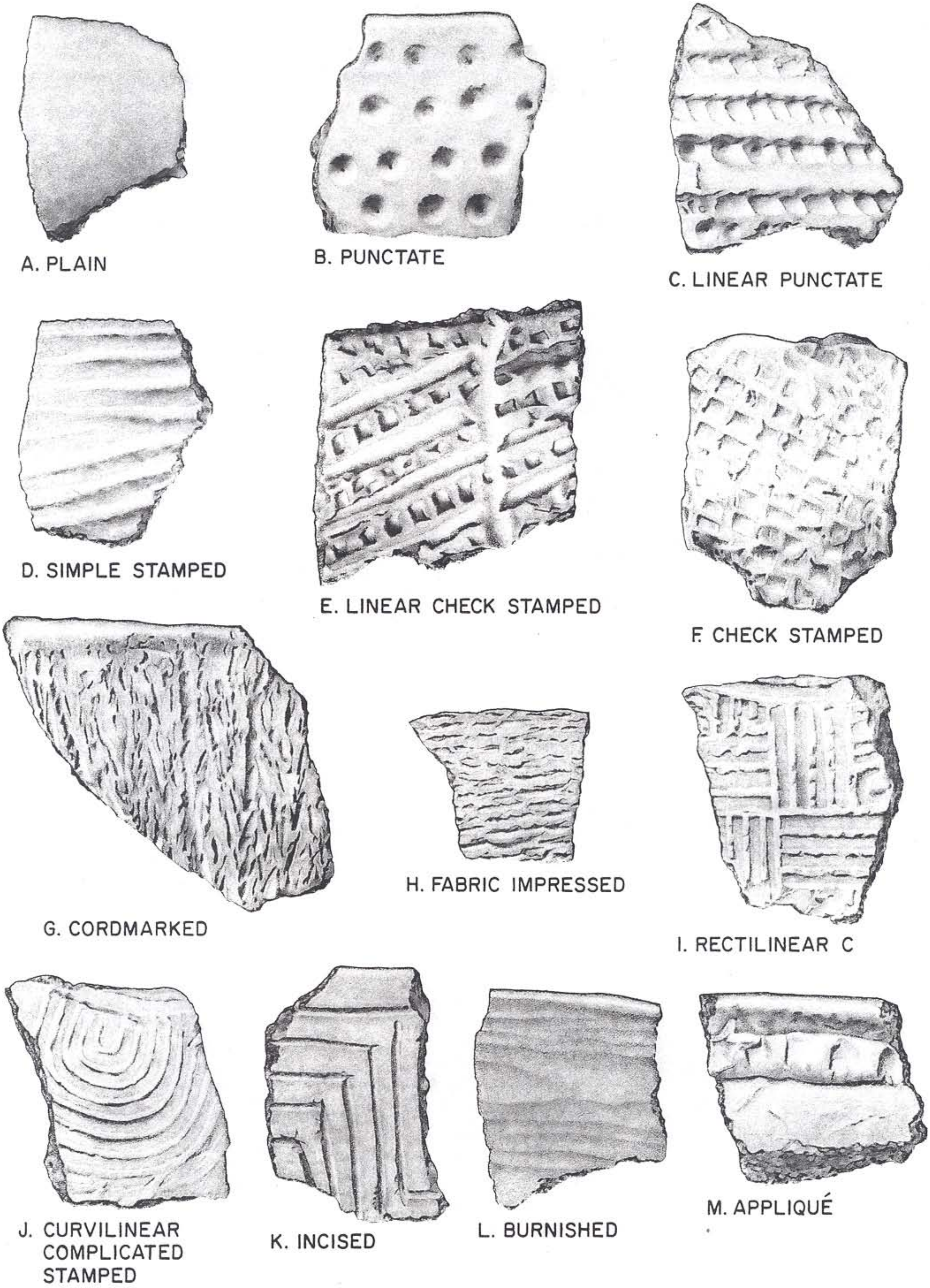


Figure 9: Ceramic surface treatment types.

Check stamped: Check stamping is formed by the impression of a cross grooved paddle on the vessel walls. The resultant pattern is represented by a relatively uniform checked surface. Individual checked impressions may vary from diamond to square forms. Bold check stamping occurs during the Early and Middle Woodland periods. Fine check stamping occurs on Middle and Late Woodland sites (Fig. 9F).

Cord marked: Cord-marked ceramics are characterized generally by the impression of various twisted cord elements into the vessel walls. The cord impressions most regularly are patterned in linear or crossed rows (Fig. 9G).

Rectilinear complicated stamped: This type of surface treatment is recognized by complex angular patterns of impressions formed by a carved paddle. Diamonds, rectangles, squares and other geometric elements are most common. This is a Mississippian Period decoration (Fig. 9I).

Curvilinear complicated stamped: This type is similar to the rectilinear type in that a complex carved paddle is the source of the design. However, the patterns in this case have curved and circular elements. Curvilinear complicated stamping occurs during the Late Woodland and Mississippian periods within this region (Fig. 9J).

Incised: This surface treatment is formed by the carving or incising of wet vessel walls prior to firing. The design or form of these incisions can vary from parallel lines (Fig. 9K) to zoned patterns to curvilinear designs. Unlike the stamped treatments, incising is apparent by the deep sharp lines often spaced irregularly on the sherds or vessel surface.

Applique: This class of surface treatment was formed by the application of either individual or linear clay pieces to the prepared surface of a vessel. These pieces of applique protrude from the vessel walls and in cross section appear to be separate from the vessel wall. Applique treatment is largely a Mississippian Period phenomenon (Fig. 9M).

Burnished: This class of surface treatment resulted from the polishing of the vessel walls with a hard object, usually a smooth stone. The resultant surface shows polishing streaks that are usually parallel. Burnishing is a surface treatment from the Mississippian and Historic periods (Fig. 9L).

Historic Laboratory Procedures

The historic artifacts underwent two analyses; the first included the tabulation of the artifacts; the second included a close inspection of the glass and ceramics for distinguishable differences and/or individual pieces. The analyses were greatly facilitated by placing the glass and ceramics on a white background because slight color changes in the glaze are readily distinguished against this white background. In the case of ceramics, creamware and pearlware exhibit a slight greenish tinge or a blue tinge in the glass, respectively, as opposed to ironstone/whiteware that exhibits none. The following artifact descriptions are keyed to the historic artifact tables in each site description.

Stoneware

White salt-glazed stoneware: This stoneware's date ranges from 1720 to 1805 (South 1977: 210). "By far the most important stoneware development was the production of an entirely white ware, the earliest known documented example of which is incised with the date 1720 (Noel Hume 1970: 114)."

Scratch Blue (White salt-glazed stoneware): This ranges in date from 1744 to 1775 (South 1977: 210). "In the mid-eighteenth century white saltglaze began to be decorated with incised ornament that was filled with cobalt before firing...(Noel Hume 1970: 117)."

Westerwald: The date range for Westerwald is 1700-1775 (South 1977: 210). Westerwald is stamped with "blue floral devices, geometric designs" (Noel Hume 1970: 284-285).

Refined Agate ware: This ware ranges from 1740 to 1775 (South 1977: 211). It is produced by mixing two colors of clay--red and yellow--with a red-colored body and two parallel raised white lines.

British Brown: With dates ranging from 1690 to 1775 (South 1977: 210), this ware is made of salt-glaze stoneware with a mottled browning upper-half. It is usually a drinking mug of varying size from pint to half-gallon.

Modern: This stoneware's date ranges from 1800 to present (Greer 1970). It includes both alkaline glazed and albany slip.

Creamware

Creamware: This ranges in date from 1762 to 1820 (South 1977: 212). "Creamware glaze...appears yellow or green in the crevices" (Noel Hume 1970: 125-126). It also exhibits a slight greenish color when held to a piece of white bond paper, as was done with this analysis.

Decorated: Decorated creamware includes the following two types:

> *Annular Ware*: The date range for this ware is 1780-1815 (South 1977: 212). "...mugs, jugs and bowls decorated in horizontal bands of color - black, green, light brown, pale blue, etc..." (Noel Hume 1970: 132).
>
> *Overglaze enamelled hand painted*: This ranges in date from 1765 to 1810 (South 1977: 212). Plain creamware has hand-painted designs over the glaze (Towner n.d.: 18-19).

Pearlware

Undecorated: This pearlware ranges in date from 1780 to 1830 (South 1977: 212). "...it can readily be distinguished by the way in which the glaze appears blue in crevices of footrings and around handles" (Noel Hume 1970: 130). It also exhibits a slight bluish color when held to a piece of white bond paper.

Decorated: This includes the following types:

Blue/Green Edge: The date range for this type is 1780-1830 (South 1977: 212). It has a shell edge decoration either in blue or green (Noel Hume 1970: 131).

Underglaze Bright: This date range is 1820-1840 (South 1977: 212). It is usually polychrome, with directly stenciled floral patterns, and has bright blue, orange, green, pinkish-red colors (Noel Hume 1970: 129).

Hand Painted: The date range is 1780 to 1820 (South 1977: 212), with "underglaze blue hand painted" (Noel Hume 1970: 128-129).

Transfer-printed: This ranges in date from 1795 to 1840 (South 1977: 212). It includes all types of transfer-printed ware other than the "willow" pattern (Noel Hume 1970: 128-130).

"Willow": This date range is 1795 to 1840 (South 1977: 212). It has a finger painted design, generally in swirls over a polychrome slip (Noel Hume 1970: 132).

Underglaze Pastel: The date range extends from 1795 to 1815 (South 1977: 212). Underglaze polychrome "...usually in floral or geometric patterns. Examples...are generally in soft hues..." (Noel Hume 1970: 129).

Porcelain

Plain: This has no date range. No pieces of porcelain were found that exhibit characteristics of those of the eighteenth or early nineteenth century.

Decorated: Underglaze design - This piece apparently is of a nineteenth century design as yet not completely identified.

Ironstone/Whiteware

Plain: The date ranges from 1813 to present (South 1977: 210-211). Ironstone/whiteware appears in "various forms of hard whitewares and semi-porcelain that are extremely difficult to date with accuracy...."

Decorated: This date ranges from 1813 to present (South 1977: 210-211). This piece was too small to distinguish accurately the design.

Tobacco

Pipe Bowls: The date ranges are unknown. The distinguishing marks are not yet identifiable.

Pipe Stem: The date range extends from the late 1600s to the late 1800s. The sample size is too small to use any dating method with accuracy. Sample size would have to increase at least one hundred times for reliable dating.

Glass

Opaque: This date range extends from 1650 to 1880 (Noel Hume 1970: 62). This refers to the olive-green/olive-amber colored glass that was produced without decolorizers, commonly called black glass (Noel Hume 1970: 71; Kendrick 1976: 52). As the name implies, this glass is basically opaque or black in appearance and poorly made containing many bubbles and stress marks (Noel Hume 1970: 60-71).

Green: This has no date range, but could be the same as opaque glass. This glass is very similarly structured as opaque but is translucent and lighter in color.

Aqua tint window: This has no date range. The size of these pieces were generally the size of a nickel or smaller, and flat and less than 2 mm thick.

Modern: This includes the following colors:

> *Clear glass*: This dates generally after 1860 (Jones 1971: 11). As the name implies, this glass exhibits no color or tint when held to white paper.
>
> *Manganese glass*: This ranges in date from 1800 to 1915 (Kendrick 1976: 54-55; Toulouse 1972: 534). This is glass that was decolorized by the inclusion of manganese into the manufacturing process (Toulouse 1972: 534). This glass changes from clear to a purple color. The intensity of the purple is determined by how long it is exposed to sunlight (Kendrick 1976: 54-55). This is not to be confused with deliberately colored purple glass, which is much darker.
>
> *Brown glass*: The date range is unknown. It exhibits the same color characteristics as the glass containing beer and whiskey for today's market, with the same range of colors.
>
> *Blue glass*: This ranges in date from 1750 to present (Noel Hume 1970: 62). It is a well-made glass containing few, if any, bubbles, and is similar in appearance to glass produced today (i.e. Noxzema jars).

Activities

Brace bit: This has no date range. It is used with a hand-powered Brace type drill.

Fence wire: This has no date range. It is not barbed wire, but a mesh type fence wire.

Arms

Light grey gun flint: This has no date range. The concave indentation indicates that this gun flint, probably from Dover, England, was used before it was discarded.

Architectural

Brick: This refers to collected brickbats.

Wrought nail: The date ranges to present; however, the introduction of cut nails about 1790 would indicate that manufacture of wrought nails after 1800 was too expensive and time consuming if the cut nails were locally available.

Cut nails: These range in date from 1790 to present (Noel Hume 1970: 253). They are rectangular in shape, usually without a head and tapering to a square end. They are usually too rusted to identify the type with certainty.

Wire fasteners: The date ranges from 1887 to present (Fontana 1965: 89); earlier manufacture dates are known; however, expense of these nails and their rarity would preclude this date.

Tipless screw: This dates to 1846 when manufacturing processes enabled the manufacture of screws with tips.

ARCHEOLOGICAL SITE DESCRIPTIONS

The archeological resources recorded during the survey of the Steel Creek floodplain margin constitute 18 discrete locations that were defined on the basis of archeological features and, in most cases, archeological materials. Data derived from the survey have been summarized in tabular form in Appendices 1 through 9. These data form the major information set that has been used in the preparation of the descriptions which follow. It is the intent of the descriptions to present the specific information concerning each site upon which evaluations can be based.

Site 38BR438

This site consists of prehistoric lithic and ceramic debris as well as 19th and 20th century material scattered over an area 300 by 150 meters. Originally located in 1973 by the first archeological reconnaissance on the Savannah River Plant, the site has been revisited and collected in 1977 and 1981. This prehistoric and historic scatter is situated adjacent to Steel Creek Bay (a Carolina Bay) along SRP road A-17 approximately one quarter of a mile south of its junction with SRP road A-17.2. The floodplain of Steel Creek lies 200 meters to the east (Fig. 10). Overall the soil common to this site is the Grady-Bayboro class that consists of black sandy loam above a gray clay (Aydelott n.d.). Present day vegetation in the vicinity of site 38BR438 is predominantly planted pine plantation with nearby bottomland hardwoods (water oak and sweetgum) in the Steel Creek floodplain. Some remnants of bald cypress are also present in this floodplain. In general, the site is situated within the terrace environment of the region in close proximity to the stream floodplain zone. This context would have offered a diversity of wild food resources to the prehistoric inhabitants and excellent arable soils to the historic era inhabitants.

Archeological evidence recovered from 38BR438 was obtained through an intensive surface collection along all exposed ground surface areas of the sites. These collections represent approximately 40% of the total site area. Surface debris indicates that the site was not very dense along the floodplain margin; in fact, the densest portion of 38BR438 was 75 meters from the eastern edge of the site. For this reason and because Steel Creek will not be flooded to a level capable of affecting the site, no site testing was conducted. However, materials recovered from the surface context do allow for adequate temporal placement of the site. As indicated in Appendices 2 through 9, site 38BR439 has considerable artifact diversity with cortical flakes, thinning flakes, flake fragments, chunks, other bifaces, unifaces, utilized flakes, hafted bifaces, ceramic sherds, a core and a hammerstone. From a chronological perspective the site shows evidence of being occupied during at least three chronological periods in prehistory; the Middle Archaic as indicated by the Morrow Mountain point, the Late Archaic as suggested by an Otarre stemmed point, and the Woodland as demonstrated by a small triangular point. Prehistoric ceramic data further support the inferred Woodland occupation because simple stamped,

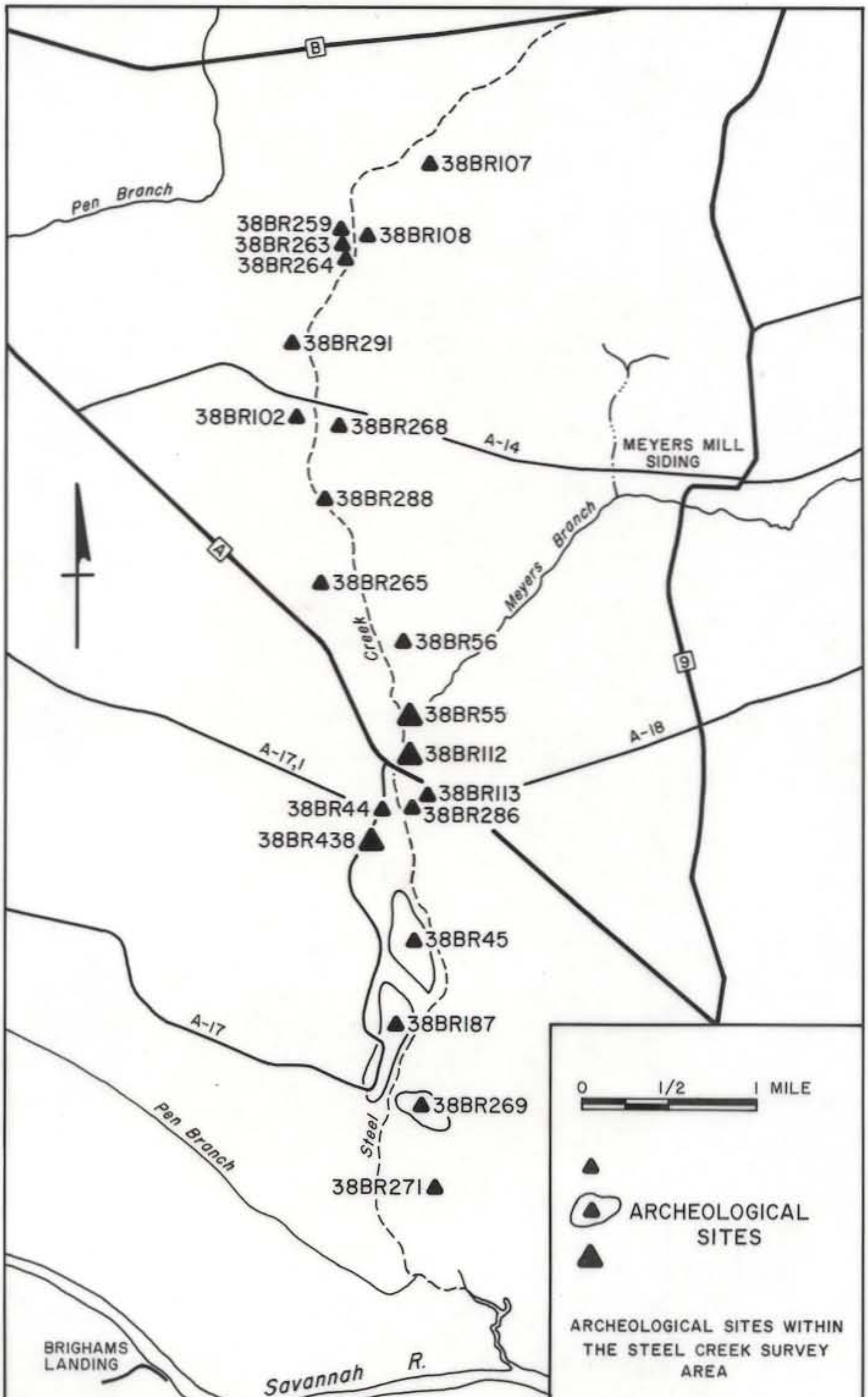


Figure 10: General map of the area showing site locations.

check stamped, bold cord marked and fine cord marked sherds are present. Overall, the archeological record of site 38BR438 strongly suggests a minimum of three discrete occupations. The site's overall large size, the relative high density of lithic material and the moderately low frequency of ceramic sherds strongly suggest repeated occupations on perhaps a seasonal basis.

Site 38BR44

Site 38BR44 consists of a lithic scatter with historic materials on the terrace above and immediately adjacent to Steel Creek. It is located approximately 150 meters south of the junction of Roads A-17 and A-17.2, and 75 meters west of Steel Creek. The site's context is significant in that it is in close proximity to the confluence of Steel Creek and a small tributary. The predominant soil types are Johnson and Okonee, consisting of mucky loam over dark gray sand (Aydelott n.d.: 12). Modern vegetation includes pine plantation and lowlands hardwood species such as laurel oak and water oak.

This site was discovered during archeological reconnaissance in 1973 and revisited in 1977 and 1981. Two intensive, general surface collections were made from ground surface exposed by Road A-17 and assigned separate provenience numbers. Ground surface visibility is approximately 25% with most of the site covered by grass, leaves, and pine litter. The site has been estimated to extend 100 meters north-south and to extend at least 50 meters east-west. Depth of site deposits was estimated from exposed road cut to be between 30 to 50 cm. Undisturbed deposits below the 10 cm plow zone may be present. No subsurface testing was undertaken because the site was too far away from Steel Creek to be affected by the proposed flooding (Fig. 11).

Prehistoric remains included thinning flakes, chunks, possible fire-cracked rock, hafted bifaces, unifaces, and utilized flakes. Diagnostic artifacts include Palmer, Taylor, and Savannah River points, suggesting both Early and Late Archaic occupations.

The historic artifacts located at 38BR44 include modern glass, modern stoneware (Albany Slip), plain porcelain, plain ironstone/whiteware, decorated ironstone/whiteware and decorated pearlware. The decorations on the pearlware include: hand painted, willow transfer, transfer printed, underglaze bright and blue shell edged. The eight pieces of pearlware can reliably date the earliest historic occupation of this site as between 1780-1840 and probably lasting to about 1930. There is no indication of a house located in the area in 1939, according to the Barnwell County highway map.

Site 38BR45

This site is a prehistoric lithic scatter accompanied by a few ceramic sherds. It is located along a high ridgetop-terrace and it slopes 100 meters west of Steel Creek and a quarter mile from the junction of Water

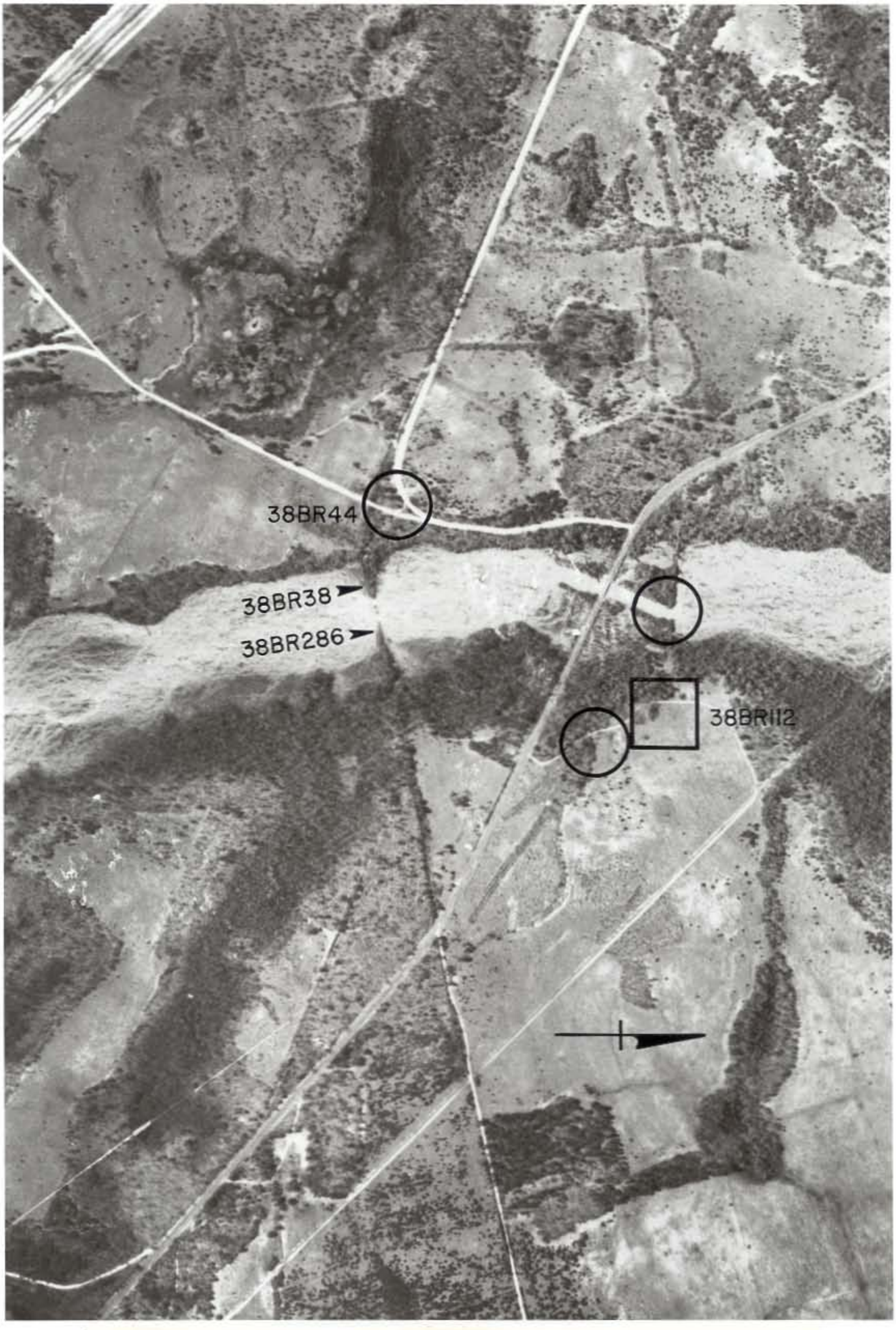


Figure 11: Aerial photograph showing the relationship of four sites to the high water level.

Gap Road and the Southern Railroad Line. The eastern edge of the site was partially destroyed by a large borrow pit. The soil type at this site is Orangeburg and Red Bay consisting of a dark brown loamy sand over strong brown to red sand underlain by red friable sandy clay loam (Aydelott n.d.). On this site vegetation consists of a short leaf pine plantation on the ridge and white oak on the terrace adjacent to the stream.

Site 38BR45 was discovered during archeological reconnaissance in 1973 and revisited twice during the present survey. Systematic collections of materials exposed by an old road and thinning forest, parallel to Steel Creek and in a firebreak, were made during each visit and assigned separate proveniences. Poor ground visibility (approximately 20%), due to a dense cover of pine needles, prevented determination of exact north-south site boundaries. However, the site extends at least 700 meters along the east-west axis. The exact depth of the site is unknown. Because of the elevation along Steel Creek (about 20 meters), it was determined that there would be no effect from the proposed flooding and future testing was deemed unnecessary.

Prehistoric artifacts include thinning flakes, a hafted biface, other bifaces, possible fire-cracked rock, utilized flakes, ceramic sherds, and a mussel shell (possibly historic). No identifiable hafted bifaces were recovered. One parallel incised sherd suggests a possible Early Woodland occupation. The paucity of pottery and diagnostic bifaces suggests formation of the site by reoccupations of short duration.

Site 38BR55

Situated at the confluence of Steel Creek and Meyer's Branch, this prehistoric lithic and ceramic scatter offers one of the most long term occupation spans of any site in the study. The extent of the artifact scatter encompasses an area of at least 60,000 square meters along Steel Creek and Meyer's Branch. Testing parallel to Steel Creek northward from the confluence indicates prehistoric artifacts approximately 600 meters along the terrace edge approaching the railroad line. This scatter extends approximately 100 meters eastward along Meyer's Branch. The site occupies the entire area enclosed by the two streams (700 meters north-south by 350 meters east-west). The setting of the site at the confluence and along the terraces of the two streams follows a general pattern of large site location common to the archeology of the Savannah River Plant (Hanson, Most and Anderson 1978). The majority of the site area is currently within a pine plantation that had been cultivated during the pre-SRP era. The soils of this location are primarily Troup loamy sand in the terrace phase, a soil type that has been correlated strongly with large prehistoric sites on the Savannah River Project (Hanson, Most and Anderson 1978). The floodplain vegetation pattern and rich soils of that zone offer a wealth of exploitable resources.

Recovery of prehistoric artifactual evidence from this site was undertaken using several approaches. Surface collection of all visible material was the strategy used during the first investigations at the site in the 1973 field season. The area at the southernmost exposure of the site was well collected since earlier disturbance associated with the powerline had removed much of the topsoil over a 100 square meter area. This disturbance resulted in the exposure of the site's stratigraphy in this area to a depth of 1.25 meters. Artifacts exposed by this man-caused disturbance, which dated back to at least 1950, indicated that the site had a minimal cultural deposit to .75 meters. During the 1981 field season, surface collection was again employed to recover artifactual material from the area of the dirt roadbed and in the large disturbed area. The surface collections suggested that the site contained material dating to the Late Archaic Period.

To validate the depth and content of the site, a series of subsurface test units were placed using a transect method. Fifteen posthole tests (proveniences 10A through 24A) were excavated northwest of datum stake C (see Figs. 12 and 13). These units were spaced at 2-meter intervals and were used to determine the depth of the cultural deposits in the southern area of the site. These tests indicated that the site was indeed one meter deep, but they did not reveal material earlier than the Late Archaic.

Further subsurface testing at the site was concentrated along the western edge of the site in the area which could be subject to erosion by the increased water flow expected in Steel Creek. Using arbitrary site datum B, a line of .25 by .25 meter shovel tests was excavated at staggered intervals along the terrace edge for 25 meters (proveniences 25A through 32A). Three hafted bifaces and numerous sherds were recovered from these units. To the west of provenience 32A, two similar shovel tests were excavated (proveniences 33A and 34A) to determine whether the site extended westward to the floodplain. The minimal artifact recovery from these two units relative to other tests suggests that the site was restricted to the terrace and has not been extensively eroded by the stream.

Once the westward and southern extent of the site was determined, a block of shovel tests was placed inward from the terrace edge to establish the density and structure of the densest area of the site. Six lines of shovel tests oriented east to west and perpendicular to the terrace edge were established (see Fig. 13). A total of 60 shovel tests was made on the 5 by 5 meter grid. Each was excavated to a depth of at least .75 meters or to the limits of cultural material. All soil transitions and dense artifact concentrations were noted. It is from this testing and the line parallel to the terrace that the Middle Archaic (Kirk) occupation was established for the site. The test block research indicated that the site was a multiple activity location during the period from the Middle Archaic into the late prehistoric. This longevity and redundancy of occupation shows the preference of this type of setting for prehistoric settlement. There is, of course, no reason to expect that the site was continuously occupied during this time span, but rather that it was used for different occupational episodes regularly.

A final line of test excavations was placed along the terrace edge at staggered intervals (proveniences 101A through 115A) northward from the test block to determine if the site maintained its density away from the assumed core area. Although the line extended 250 meters north from datum B, artifacts were recovered from all but one test. Additional surface examination beyond the 250 meter limit of the test line indicated the 600 meter north to south extent of the deposits.

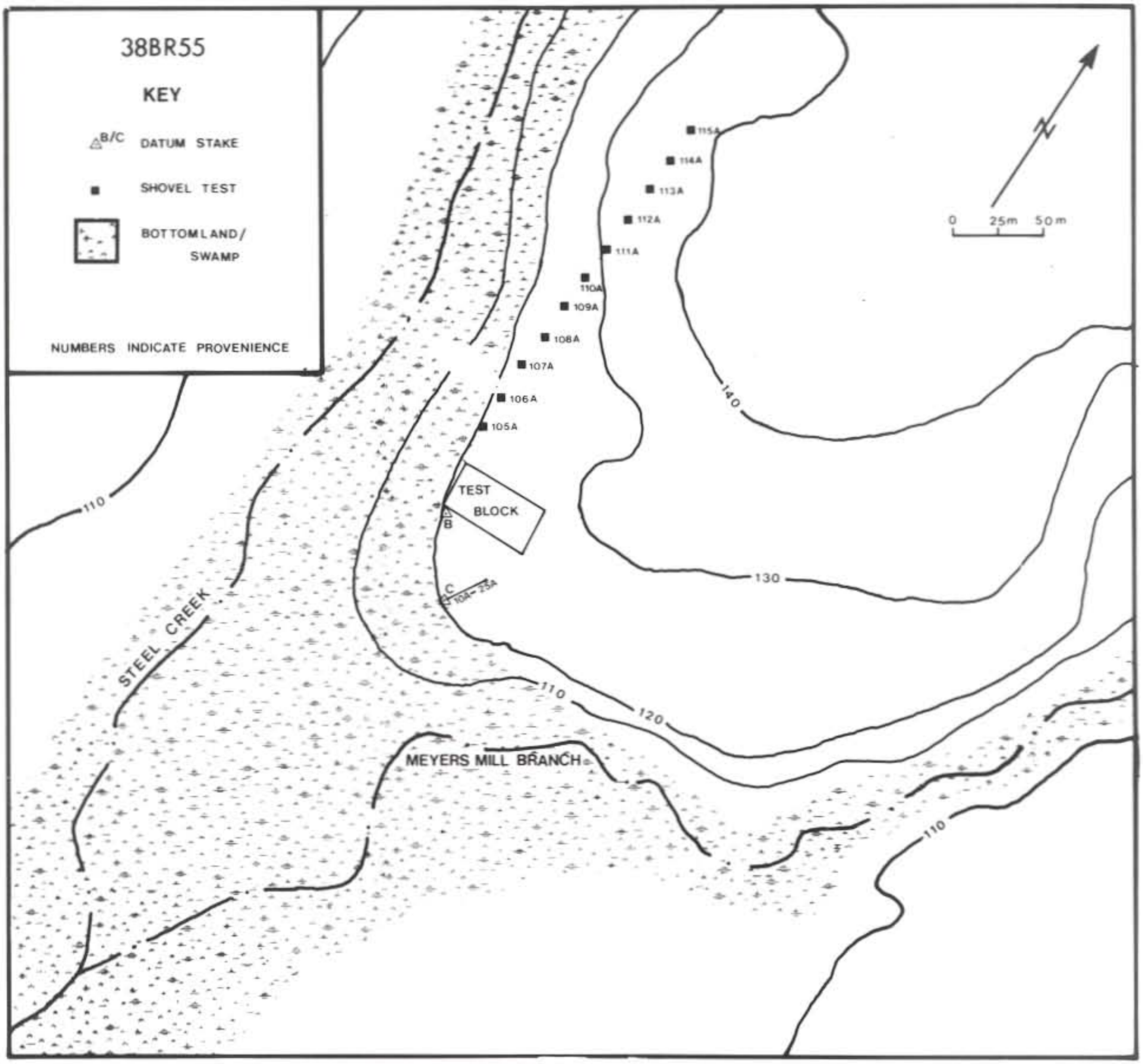


Figure 12: General site map of 38BR55 indicating area of testing.

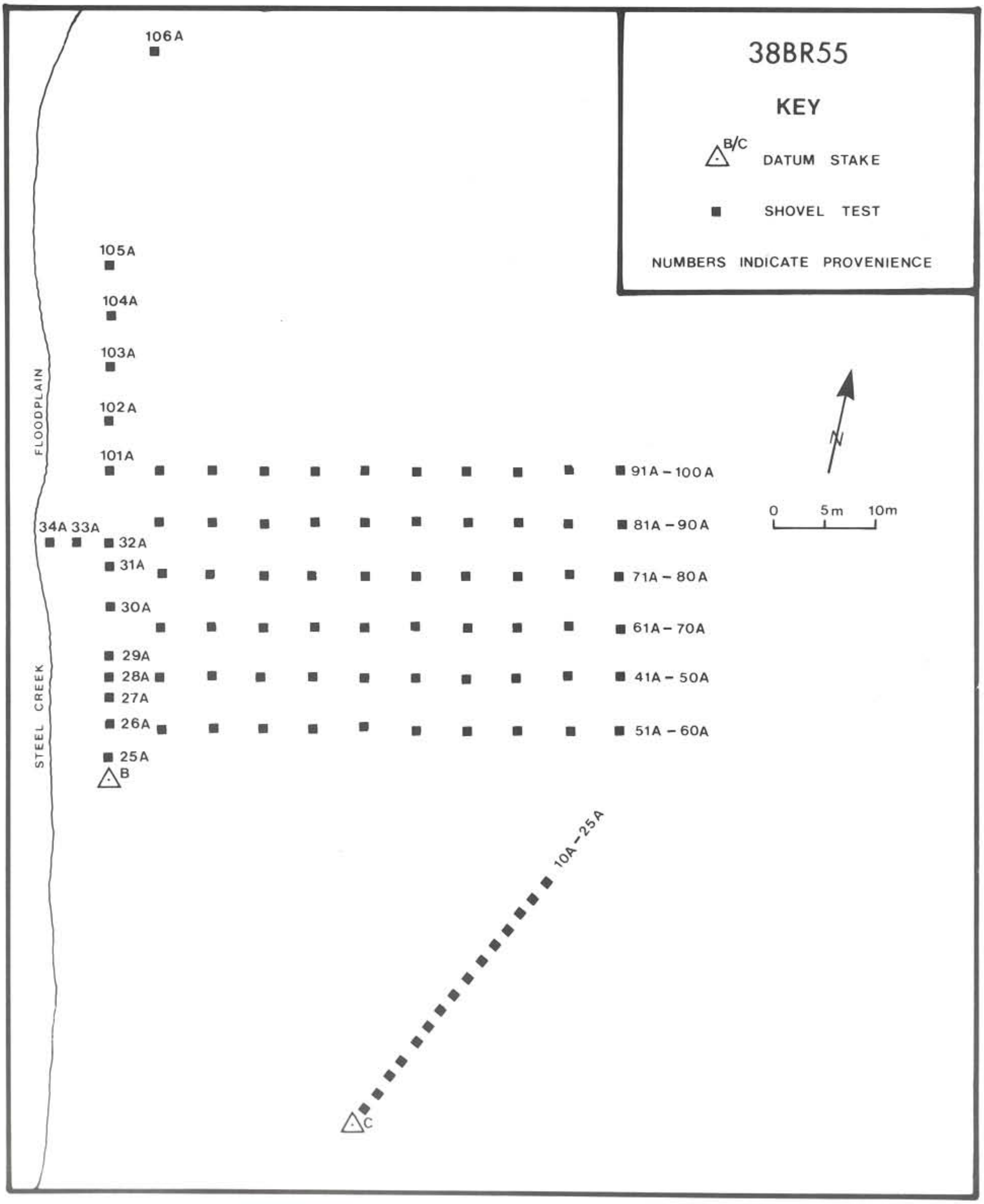


Figure 13: Enlarged map of the test block on Figure 12 indicating placement of proveniences.

In all, the testing procedures used at 38BR55 indicate that the site has a density of approximately 400 artifacts per cubic meter. This estimate is based on the average of 25 artifacts per .25 by .25 meter test to a depth of 1 meter. This average density appears to extend over most of the site, indicating a rather extensive cultural deposit. Also, the depth of the deposits extended to an average of .75 meters with a maximal depth of 1 meter. Although this deposit contained dense artifactual material throughout, much of the deposit appears to be alluvial resulting from flooding in the Steel Creek basin during certain periods of perhistoric occupation. This deposition of non-cultural fill at the site has served to segregate several of the archeological occupations. This stratification of deposits dating back to the Middle Archaic within a depth of 1 meter supports arguments for the site's significance.

Site 38BR55 was tested to discern the presence of any structures indicative of the prehistoric patterns. Although some minor spatial association was noted in preliminary analyses, the lack of clear stratigraphic control from the test units biased the results. However, such analytical approaches should be used for spatial patterning in any future work at the site.

Cultural evidence recovered from site 38BR55 was substantial and diverse. One hundred fifteen controlled provenience samples were taken at the site resulting in the collection of several thousand artifacts (see Appendices 1 through 9). As in most prehistoric sites, lithic debitage was the predominant artifact class recovered. These materials indicate the preparation and maintenance of lithic tools at the site during all prehistoric occupations. Other general tool classes recovered include utilized flakes, unifaces, hafted bifaces, other bifaces, a mortar, worked steatite, abundant ceramic sherds, fire-cracked rock and a single historic, kaolin pipe fragment. This diverse and plentiful tool assemblage supports the hypothesis that the site served as a base camp or habitation site throughout most of the prehistoric occupation of the Savannah River Project area. Temporally diagnostic artifacts include Kirk Corner-notched points, Savannah River Stemmed points, pottery with plain, simple stamped, punctate, linear check stamped, check stamped, cord marked and complicated stamped surface treatments, and a kaolin pipe fragment. These materials are known to span the time from the Middle Archaic through the Historic periods in the Coastal Plain region.

In summary, the evidence recovered through testing at site 38BR55 strongly indicates a rich archeological deposit that should be considered as a significant archeological resource in the southeast region. Although other sites contain similar artifactual records, few have been examined closely to document the nature of human adaptive change in the Coastal Plain province. With the exception of the uppermost deposits that were disturbed by pre-Savannah River Project plowing, the site has been undisturbed since the deposition of the prehistoric materials. Given the context of the site relative to the diverse environment zones of Steel Creek, Meyer's Branch, and the terrace zones, data from the site would provide valuable knowledge regarding the changes in technology during the 5,500 years of occupation. Through controlled recovery of soil and vegetal materials from the site, a better understanding of various subsistence strategies could be obtained. Further, the presence of Late Archaic and

Early Woodland remains suggest that this location could yield important data regarding this major cultural transition (Hanson 1981). For these reasons, site 38BR55 should be considered to be a significant prehistoric resource worthy of careful consideration.

Site 38BR56

This small lithic scatter is situated on the edge of a low terrace adjacent to the Steel Creek floodplain. The site was discovered in a dirt road cut on the north side of the Seaboard Coast Line Railroad right-of-way 250 meters east of the Steel Creek crossing. Due to the construction of the railroad during the early part of this century and the associated trestle and bridge, the site has been severely modified. With the possible exception of its northern extremity, site 38BR56 has been disturbed beyond recovery. This destruction occurred well before the acquisition of the property by the Atomic Energy Commission in the 1950s.

The natural setting of the site is similar to others located during the survey in that it is situated within 250 meters of Steel Creek and upon the first terrace of the creek. The terrace phase of Troup loamy sand is the soil type present at site 38BR56. This soil is most commonly noted for a very dark gray loamy sand underlaid by brown to yellowish-brown loamy sand (Aydelott n.d.: 20). Modern vegetation in the immediate vicinity of the disturbed site is primarily loblolly pine plantation to the east and hardwood floodplain vegetation to the south and west. The site rests on a moderately well-drained soil overlooking a large tributary stream, a location common to the Upper Coastal Plain.

Site 38BR56 was discovered during the 1974 reconnaissance of the archeological resources of the Savannah River Plant (Hanson, Most and Anderson 1978). It has been subsequently visited and collected during the present survey. Intensive surface collections of all visible material were made from frontage roads during both visits, and each was assigned separate provenience numbers. The extent of the site was effectively estimated by the distribution of materials in road cuts and exposed areas to be 80 meters on the north-south axis and 50 meters on the east-west axis. Due to the severe disturbance of the site, no estimate of site depth was made. Since the site was located in excess of 200 meters from the proposed zone of flooding, no subsurface testing was necessary.

From the surface collection, cortical flakes, thinning flakes, possible fire-cracked rock and an other biface were recovered. This sample of the site's artifact assemblage cannot be assigned to a specific chronological position due to the lack of temporally diagnostic materials. No inference can be made as to the nature of the occupation(s) because so much of the site has been destroyed.

Site 38BR102

Prehistoric lithic and historic materials comprise the archeological assemblage collected from this site located at the junction of Savannah River Plant roads B-5 and A-14 west of the Steel Creek floodplain. The topographic setting of the site is a hillslope overlooking the floodplain. Large portions of the site are exposed by transmission lines that parallel road B-5 making the collection of archeological materials less difficult than sites with dense forest litter cover. The site is situated on Vaucluse and Blaney soils that are predominantly well-drained, pale, brown sands underlaid by firm brown, sandy, clay loam (Aydelott n.d.: 6). Vegetation near the floodplain is scrub hardwood, and above 50 meters in elevation is pine plantation.

First discovered by archeological reconnaissance in 1974, this site has been revisited twice during the present survey. Intensive general surface collections were made of diagnostic artifacts and debris from areas exposed by the two dirt roads and along the powerline right-of-way. Five proveniences were assigned at this site, three representing surface collections and two representing subsurface test pits. From these collections and tests, it was determined that site 38BR102 extended 350 meters east-west and 100 meters north-south. Surbsurface testing was conducted during the last phase of the fieldwork using 30 by 30 centimeter squares in the floodplain of Steel Creek and along the adjacent hillslope to determine the presence of buried deposits and stratigraphic integrity. In all, seven tests were made (i.e. two in the floodplain and five on the slope). The tests in the floodplain demonstrated that during the construction of the transmission line approximately 50 centimeters of soil had been borrowed from the hillside to build up the floodplain. Tests on the hillslope were placed in relatively undisturbed areas of the sites. In two of these tests, proveniences 3-A and 4-A, historic and prehistoric material was recovered to a depth of 30 centimeters.

Prehistoric remains recovered from the site include cortical flakes, thinning flakes, fire-cracked rock, a hafted biface, an other biface and ceramic sherds. The hafted biface, a Savannah River Stemmed point, and parallel simple-stamped sherds suggest a Late Archaic-Early Woodland occupation. As indicated in Appendices 1 through 9, the assemblage from the site is relatively sparse which may represent its use as a limited activity locus. Support for this argument is added by the site's location in the sandhill environmental zone.

The historic artifacts present at 38BR102 include modern glass, ironstone/whiteware, pearlware, and porcelain. The indication is that the historic component of the site may have occurred prior to the Civil War, but the presence of a single sherd of pearlware, dating from 1780 to 1830, is not a reliable basis to assign the site to that period.

Overall, the site appears to have representative occupations of both the Late Archaic-Early Woodland and the late 19th century. Neither component is located in a context that would be affected by any of the planned flooding. The site has been disturbed by earlier construction activities that have partially destroyed its integrity.

Site 38BR112

This site is an historic mill dam across the Steel Creek floodplain that has both historic and prehistoric materials. It is located along an unnamed dirt road one-half kilometer northwest of the intersection of S.C. Highway 125 and Savannah River Plant road A-18. Cultural materials associated with the dam were found on the ridgeslope 200 meters southeast of the confluence of Meyer's Branch and Steel Creek. The soil type occurring at the terrestrial portion of the site is Fuquay and Wagram, a moderately well-drained, dark, gray sand underlaid by yellowish-brown, sandy, clay loam (Aydelott n.d.: 10). Vegetation east of the site is reforested pine plantation and west of the site is a mixed hardwood and pine floodplain association containing holly, sweetgum, water oak, loblolly pine, cottonwood, and cypress.

Artifacts were collected during the 1975 reconnaissance survey. The mill dam and possible structures were observed, but not recorded until 1981. No additional artifact collections were made. The depth of the cultural deposits was evaluated during the survey because of the terrestrial portion of the site outside the flooding area. The mill dam was not tested since the dam was visibly an earthen structure without support. Subsurface testing was not warranted at the dam because such structures do not commonly yield artifactual records. No subsurface testing on the terrestrial portion of the site was made because of its distance from the floodplain. The overall limits of the artifact scatter are estimated at 100 meters by 100 meters.

Prehistoric artifact remains include a cortical flake, thinning flakes, a chunk and the cutting edge from a polished stone axe. The axe showed evidence of being reused as a chopping tool and a hammerstone. Due to the absence of temporally diagnostic artifact types, no chronological assignment could be made for the prehistoric components at 38BR112. The overall low diversity of lithic tools and debitage from the site suggests a function as a limited-activity locus.

The mill dam was identified as the property of Dunbar and Sweat during the period between 1814 and 1825 (Mills 1825). The mill is documented again in 1843 as property belonging to a Francis F. Dunbar (Barnwell County Plat Book 6: 41). This latter document shows two mill structures on the dam, but they were not observed during the survey. According to the 1870 Manuscript Census, Products of Industry, the estate of F. F. Dunbar was operating the mills, each being run by a single person. One mill was a saw mill, the other a grist mill. The second mill does not appear on any plats until the twentieth century. R. L. Meyer pointed out the location on the 1950 land acquisition maps of the Atomic Energy Commission and the U.S. Army Corps of Engineers. The dam itself measures between 2 and 3 meters in height above the floodplain and 3 to 6 meters wide. The length of the dam is approximately 80 meters. No archeological evidence exists of the two mills or of any dwellings in the vicinity of the mill dam (Fig. 14).

The historic period artifact assemblage from 38BR112 consists of modern glass, brick, modern stoneware (Albany slip) and plain ironstone/whiteware. These materials seem to indicate that the site was occupied during

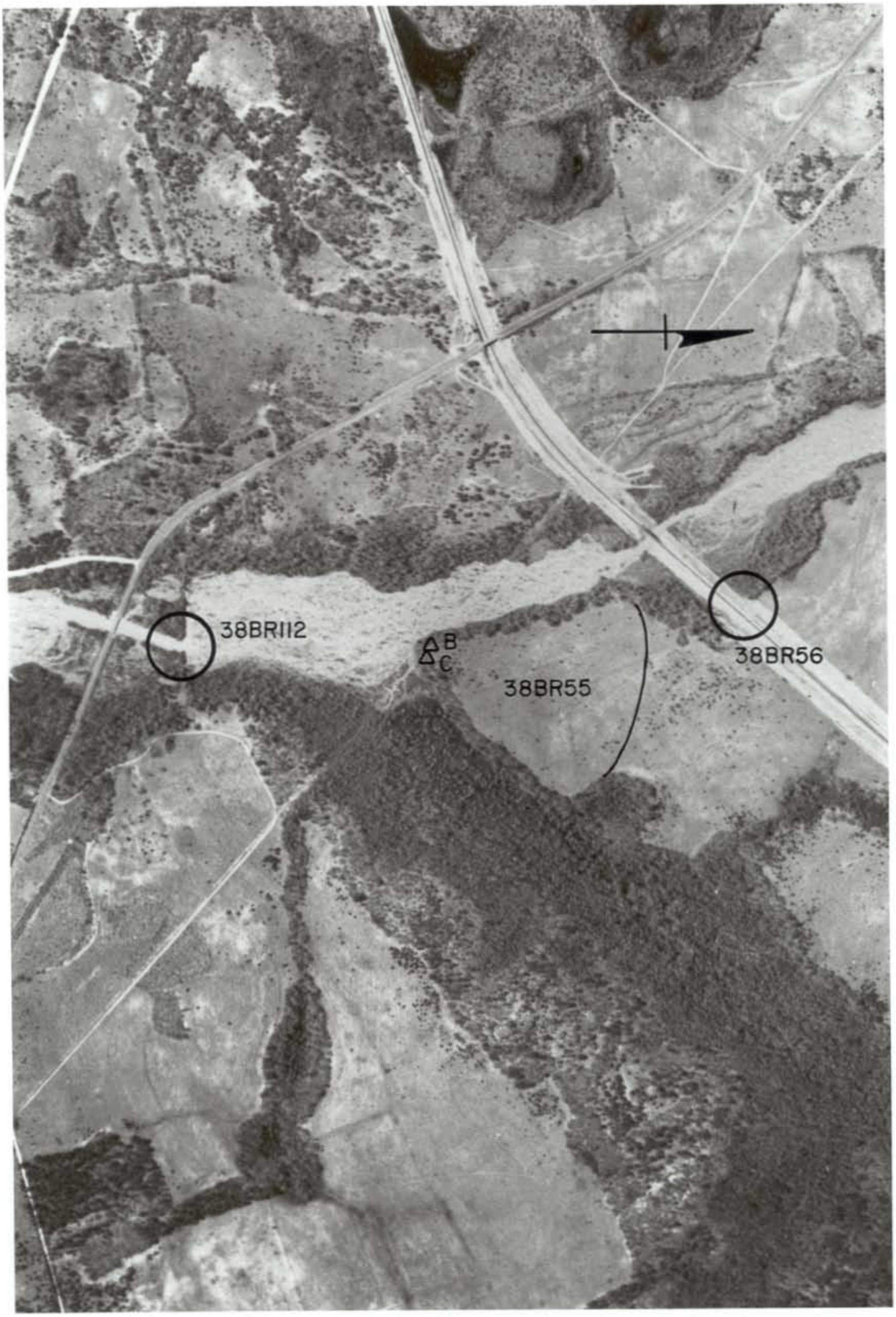


Figure 14: Aerial photograph indicating the relationship of three sites to the high water level (as discussed in the report) (38BR55, 38BR56, and 38BR112).

the late Historic Period, which does not allow for the possibility of a homesite with the mill dam.

Site 38BR187

During the 1977 archeological inventory four separate artifact loci, separated from each other by several hundred meters, were recorded as sites 38BR184, 38BR185, 38BR186, and 38BR187. During the present survey, better-ground visibility permitted recognition of these four loci as a single large archeological scatter. The four sites have, therefore, been lumped together under the single number 38BR187.

Site 38BR187 consists of a long, narrow scatter of historic and prehistoric material along the terrace of Steel Creek. Distances to Steel Creek vary between 30 and 50 meters to the east. The site is situated along the north-south segment of road A-17 parallel to Steel Creek from the road's bend near the creek to the Seaboard Coast Line Railroad tracks. The scatter is somewhat continuous for 1.4 kilometers north-south and at least .5 kilometers northeast-southwest. The artifactual materials occur in a matrix of the terrace phase of Troup loamy sand, which consists of very dark gray, loamy sand over brown to yellowish-brown sandy loam (Aydelott n.d.: 20). Present vegetation includes longleaf pine on the terrace and associated ridgeslopes and water oak on the lower terrace elevations.

Tools, flakes and sherds, exposed by roads, burned areas and firebreaks, were surface collected during the two visits to the site. No subsurface testing was undertaken to determine the depth of the deposits because the site is both too high in elevation above the floodplain and too far from the floodplain to be affected in any manner by the proposed flooding (Fig. 15). For these reasons, no further work is necessary.

During the 1977 inventory, each locus was given a separate provenience number according to site (e.g. 38BR181-1, 38BR185-1), which is presented in the data appendices. In the present survey, all new proveniences were assigned to 38BR187. Provenience numbers two through five were assigned during the 1981 investigations at the site and each represents separate surface collections.

Prehistoric artifacts recovered from this site complex include numerous cortical flakes, numerous thinning flakes, chert chunks, fire-cracked rock, hafted bifaces, other bifaces, chert cores, unifaces, a large number of utilized flakes and ceramic sherds. Only one hafted biface could be definitively assigned to a chronologically sensitive type: a small triangular point similar to the Caraway type. The presence of this diagnostic artifact and ceramic sherds with parallel simple stamped, fine check stamped, bold cord marked and fine cord marked surface treatments substantiate the placement of the site within the Woodland Period. The site was probably occupied from the Early Woodland (Deptford) through the Late Woodland (Wilmington) periods. The great density of lithic artifacts, the numerous ceramics, the diversified lithic assemblage and the great variety of debitage types suggest the prolonged occupation and/or frequent revisitation of the site.

Figure 15: Aerial photograph from the 1960's indicating high water levels. The photograph also shows the general location of four sites discussed in the report. The arrow within the circle indicating the dam location shows the old dam channel (38BR45, 38BR187, 38BR269, and 38BR271).

There are several known historic ruins in the general vicinity of 38BR187; however, no major attempt was made to collect these areas. Each ruin appears on maps made during the 1940s and is far from the Steel Creek floodplain. The ruins would not be affected by proposed activities. Since the sites do not predate 1880, they do not qualify by law for nomination to the National Register of Historic Places. Among the historic artifacts collected from 38BR187 were ironstone/whiteware sherds and a piece of modern green glass. These artifacts further support the placement of the site in the late Historic Period.

Site 38BR259

This lithic and ceramic scatter is located 300 meters east of Chaney Road, 1.6 kilometers south of road B and 100 meters west of Steel Creek. The scatter is situated on a ridgenose and terrace overlooking the Steel Creek floodplain. Early stage pine plantation and small oaks characterize the vegetation across the site. Immediately adjacent to the site is the Steel Creek floodplain which has a mixed oak, holly, pine, sweetgum and persimmon vegetation association. On-site soils are primarily Troup sandy loam, terrace phase, which consists of well drained sandy loam over tan to orange sand.

The location of the site on the terrace overlooking the floodplain and extending west approximately 50 meters would have been excellent for the prehistoric utilization of the two environmental zones (Fig. 10). The site dimensions were 120 meters on the north-south axis and may indicate an association with nearby sites 38BR263 and 38BR264. Shovel tests revealed artifacts to a depth of 80 centimeters, although undisturbed ceramics were removed from a depth of only 35 centimeters. This apparent stratification of ceramic materials over exclusively lithic deposits suggests multiple occupations at the site over considerable time.

This site was first discovered during the 1981 survey. Concentrations of both lithic and ceramic material were noted and mapped as they were collected from the surface. Each concentration was assigned a separate provenience number. The site was divided into quadrants and general surface collections were made from each. A map of the concentrations and quadrants is presented in Figure 16. In an effort to document the site depth, two lines of shovel tests were excavated. One line traversed the site on a north-south axis on the second elevated terrace and crossed to the first terrace on the southern portion of the site. In all, 12 test holes were excavated along this transect line. The second line was oriented along an east-west axis from the second terrace to the edge of the floodplain of Steel Creek. This line resulted in the excavation of seven test holes. The test holes on the north-south line were spaced 10 meters apart; the east-west line, 5 meters apart.

In Provenience 9A, a shovel test unearthed an unusual soil discoloration that warranted additional investigation. A 1 meter by 2 meter test unit was placed in the area to determine the nature of this irregularity (Fig. 16). Upon initial exposure, the discoloration was oriented in a north-south direction and had a sharply defined margin. The color of the

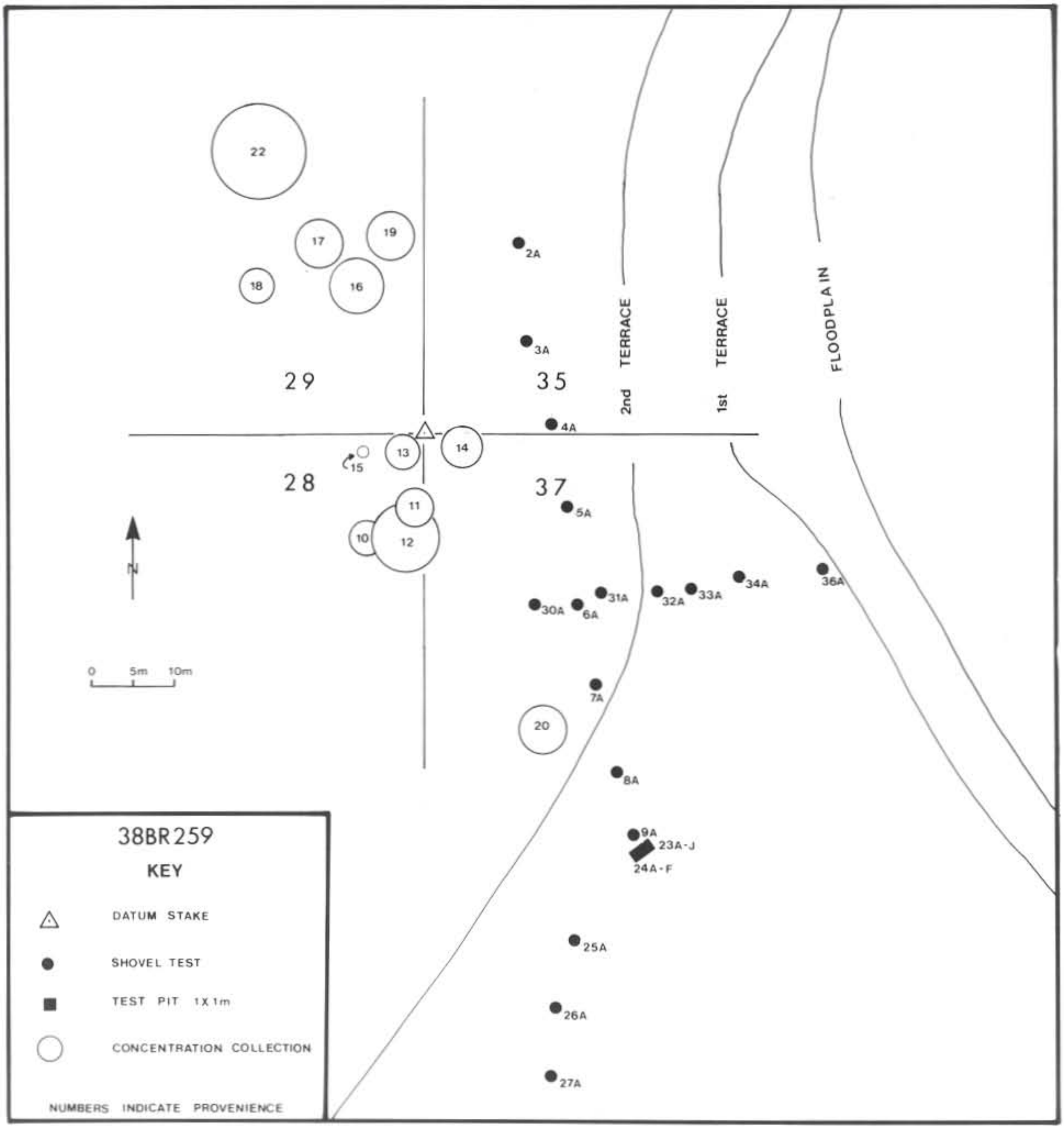


Figure 16: Site map of 38BR259 showing the proveniences.

feature was a very dark brown and appeared to have an inordinately high organic content. It was first thought that this feature was an historic drainage ditch associated with the field area to the north and west, but all other Historic Period drainage ditches were extant and unfilled, and, in addition, the feature was covered with approximately 30 centimeters of overburden. Additional testing of the feature indicated that the linear depression was at least 4 meters in length. The soils surrounding the linear feature were loosely packed while the feature itself was highly compacted. Prehistoric artifacts were recovered from the test units, and all lithic artifacts and sherds were found lying flat on the edges of the feature. Within the feature fill, artifacts were oriented in a random manner. From this evidence no conclusions are possible regarding the chronological age or functional use of the feature. Since the feature is located well away from the Steel Creek floodplain, site 38BR259 should not be altered directly or indirectly from the proposed flooding. Nonetheless, the linear feature will remain an enigma until additional research can be conducted at the site.

The prehistoric artifact inventory derived from surface collections and subsurface testing consists of cortical flakes, thinning flakes, chunks, fire-cracked rock, several unifaces, utilized flakes, a metate (i.e. grinding stone), and ceramic sherds. Diagnostic hafted bifaces were conspicuously absent at 38BR259. Ceramic sherds with distinctive surface treatments indicate an Early Woodland occupation because only simple stamped, punctate and plain sherds were discovered. The sherds seem to have been derived from three different vessels. Overall, the relative paucity of the lithic assemblage suggests that the site may have served as a limited-activity locus. The metate suggests that the site was used for processing nuts and seeds.

Site 38BR259 presents a problem because of the enigmatic feature. The artifact assemblage gathered at the site does not support the hypothesis that the feature was a wall trench, because there is too limited an assemblage to be associated with a habitation site. It may be that the feature was an early historic drainage ditch that was rapidly filled by colluvial debris prior to the excavation of the ditches obvious on the surface. Regardless of the exact function of the feature, the site offers a reasonably undisturbed context for investigations into the nature of limited activity loci.

Site 38BR263

Site 38BR263 was located and recorded during the 1981 survey along Steel Creek. This small prehistoric lithic scatter is located on a very low-lying ridgenose within a clear-cut area approximately 100 meters north of the termination of road A-14. It lies 100 meters west of Steel Creek. Troup loamy sand, terrace phase, is the soil type on which the site is located. Vegetation in the immediate vicinity of the site has been recently removed by clear-cutting; however, the area bordering the site on the east is vegetated with mixed oak and pine forest.

Ninety percent of the ground surface was accessible due to recent forest management activities, which allowed for a complete collection of all artifactual material. Further, this improved visibility permitted the accurate measurement of the site extent at 50 meters north-south by 50 meters east-west. The site was initially thought to be a segment of either 38BR259 or 38BR264; however, after careful inspection of the three sites, it became obvious that 38BR263 was a discrete archeological locus. Intensive surface collections were made from the clearcut area on two separate visits to the site, and each collection was assigned a provenience number. No subsurface testing was necessary at the site because it is located too far from the creek floodplain to be affected by changes in the stream flow (Fig. 17).

Artifacts collected from 38BR263 consists of cortical flakes, thinning flakes, flake fragments, fire-cracked rock, a utilized flake took, and a single undecorated sand-tempered sherd. No temporally sensitive lithic artifacts were discovered; nonetheless, the single sherd allows tentative placement of the site within the Woodland Period. Based on the small size and limited artifact diversity, this site may be considered to be a single occupation limited activity locus.

Site 38BR264

Lithic artifacts are scattered over an area of 400 square meters at this site, which is situated on the margin of the Steel Creek floodplain. The site is exposed at the end of road A-14.1 and along a parallel transmission line. Johnston and Okonee soils compose the on-site soil type, which is characterized by a mucky loam over dark gray sand (Aydelott n.d.: 12). Vegetation in the vicinity of the site is predominantly oak, holly, shortleaf pine and sweetgum.

Intensive surface collections were made within the exposed ground areas of the site that were altered during the construction of the transmission line right-of-way across the floodplain. Collections were also made along road A-14.1. Subsurface testing was accomplished through two .25 meter by .25 meter shovel tests that confirmed the overall disturbed nature of the site by early land use practices. In the areas adjacent to and within the floodplain, the soil was fill from the terrestrial portion of the site.

The sample of the artifact assemblage produced no temporally diagnostic materials. Only cortical flakes, thinning flakes, chunks and a utilized flake were recovered. This limited material culture assemblage indicates that the site was most probably a limited-activity locus used for a brief time. Combined with the disturbed context of the site, the artifact sample would not warrant additional archeological research.

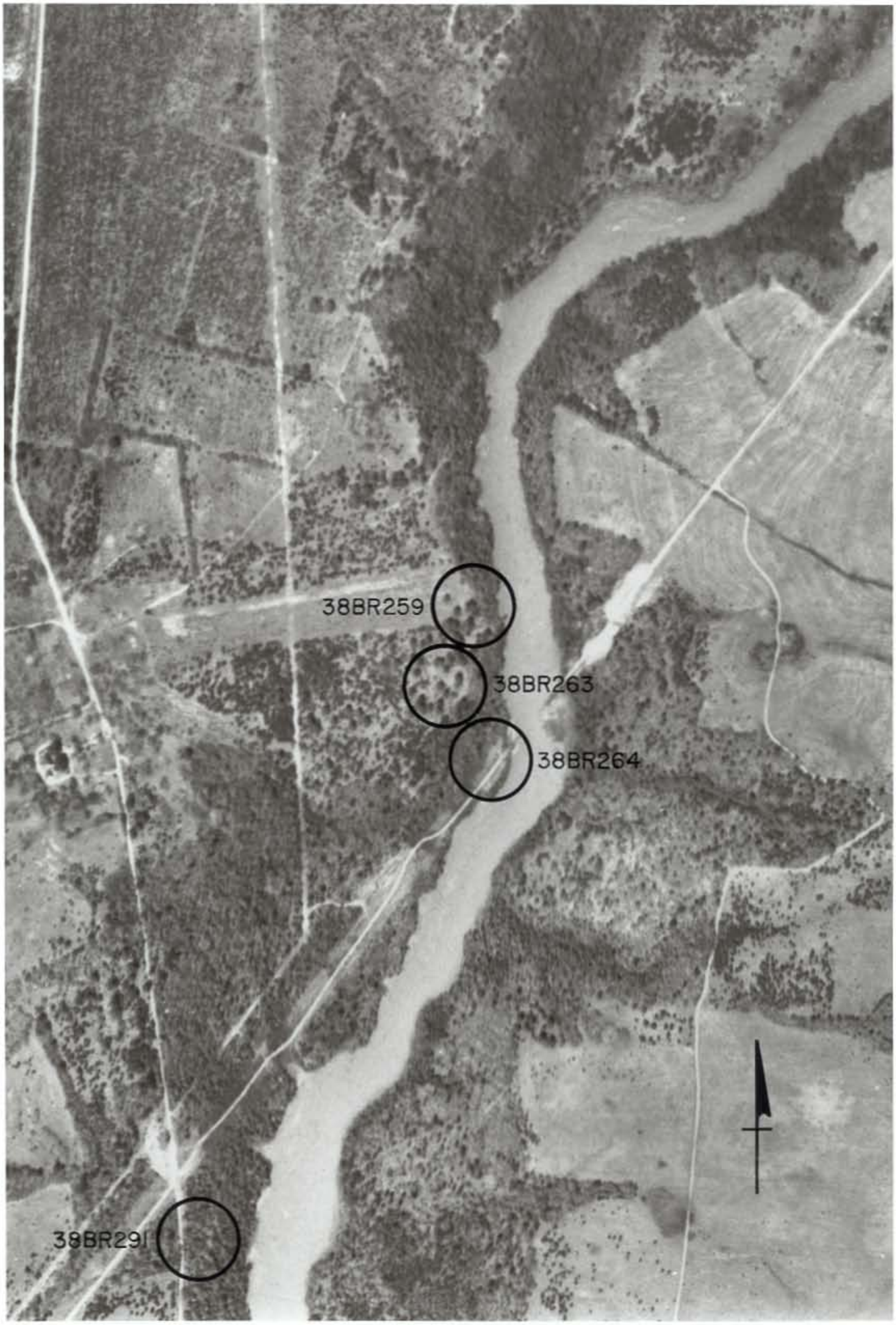


Figure 17: Aerial photograph indicating the relationship of four sites to the high water level as discussed in the report (38BR259, 38BR263, 38BR264 and 38BR291).

Site 38BR265

This site consists of a small, sparse lithic scatter located on a relatively steep ridgeslope (5% grade) 100 meters west of the Steel Creek floodplain and 500 meters north, northeast of road A-16. Orangeburg and Red Clay types constitute the soil in the area, being a well drained, very dark loamy sand over brown to red sand (Aydelott n.d.: 17). Mixed hardwood and pine, including loblolly pine, white oak and water oak, compose the area's vegetation.

First visited during the 1981 survey, site 38BR265 was collected on two separate occasions. An intensive general survey collection of visible artifacts was made on the first visit to the site along an exposed firebreak. Due to the dense surface litter at the site, two meter-by-meter rake tests were made parallel to the firebreak at intervals of roughly 5 meters. No artifactural evidence was recovered during the rake testing operation.

During the second visit to the site, rake tests were used to define the extent of the artifact concentration. A datum stake was arbitrarily placed in the area of the firebreak that produced prehistoric artifacts. Two sections 15 meters in length were measured and flagged on each side of the stake. These areas were raked clean of forest litter and collected as separate proveniences. Using this method the site was determined to be 30 meters long on the north-south axis; no clear limits could be found on the other. Since the site is situated 100 meters away from the floodplain, no alteration to the site is expected.

The sample of artifacts collected from the four proveniences at the site include thinning flakes, a chunk, fire-cracked rock, a hafted biface tip, a hammerstone and a bold cord-marked sherd. The apparent small size of the site, the unusually diverse assemblage and the relative steepness of the locale suggest that the site may be a limited-activity locus at which numerous food resources were acquired and processed. Temporal association of the site can only be assessed on the basis of the single sherd common to the Middle Woodland period.

Site 38BR268

Situated on a low ridge parallel to and 150 meters from Steel Creek, this site is a thin scatter of prehistoric lithic and ceramic remains. The site is located 300 meters southeast of the intersection of roads A-14 and 8-5 on a narrow dirt road that run parallel to Steel Creek (Fig. 18). Disturbance of the area has resulted from the excavation of earth in the area for pre-1950 road maintenance. Soil at the site was described by Aydelott (n.d.: 26) as being derived from other specific soil types by colluvial action resulting in their classification as Blaney, Vaucluse, Orangeburg, Lucy and Troup, a group of well-drained sands.

Site 38BR268, first discovered during the 1981 survey, was intensively collected during two investigations. Two proveniences were assigned to

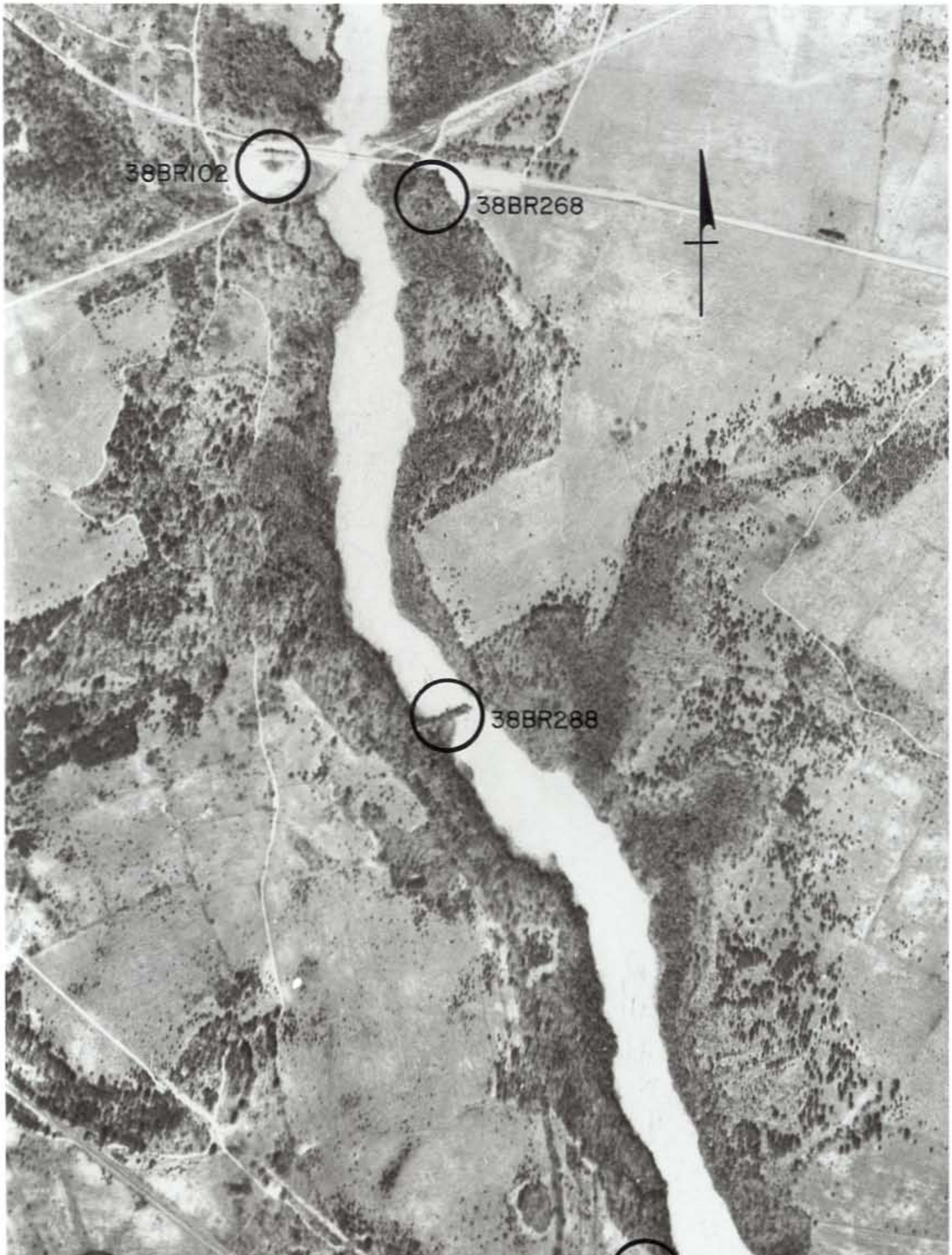


Figure 18: Aerial photograph indicating the relationship of four sites to the high water level as discussed in the report (38BR102, 38BR265, 38BR268, and 38BR288).

distinguish materials collected from the dirt road (provenience 2) and the disturbed borrow pit area (provenience 3). Material from the general surface was assigned provenience 1. Subsurface testing for stratigraphic integrity and additional artifactual data was not conducted because the site lies 20 meters in elevation above Steel Creek. This removes site 38BR268 from any danger of flooding and erosion by higher water levels.

Cortical flakes, thinning flakes, a utilized flake, and a few small sherds were collected at the site. Ceramic surface treatment was parallel simple stamped, indicating an Early Woodland occupation. No other temporally diagnostic artifacts were recovered. Based on the small size (100 meters north-south by 50 meters east-west), the paucity of ceramics and the low diversity of functional artifact classes at the site, the site was a limited-activity locus.

Site 38BR269

This historic mill dam and associated prehistoric and historic artifact scatter was located in the floodplain and along a ridgeslope east of Steel Creek at the termination of roads A-17 on the west and A-19 on the east. The overall location of the terrestrial portion of the site is the 30-meter terrace of the Savannah River. The predominant soil type at the site is Johnston and Okonee, a mucky loam over dark gray sand (Aydelott n.d.: 12). Modern vegetation in the area is mixed oak and pine.

The site was discovered and recorded during the 1981 intensive survey. All visible artifacts were collected along exposed roadways. These collections are represented by proveniences 1, 12 and 22. Extensive subsurface testing was undertaken at the site to evaluate the stratigraphic integrity, site depth and site extent. Two discrete artifact concentrations were recognized at the site. The first is located 160 meters from Steel Creek and extends for 100 meters along the terrace edge. The majority of artifacts from this cluster are prehistoric. Six 25 by 25 centimeter shovel tests were excavated by 5 meter intervals along a north-south line 160 meters east of Steel Creek and starting at datum B 45 meters west of datum stake A (Fig. 19). All six shovel tests yielded artifacts (proveniences 15A-21A).

A second concentration of artifacts situated 210 meters east of the floodplain received similar subsurface testing by running two lines of tests. One line began 7 meters north of datum stake A and extended 60 meters. Seven tests were placed on this line at staggered intervals and are represented by provenience numbers 2A through 7A and 13A. The second line in this area consists of 4 shovel tests extending at 5-meter intervals 20 meters south of datum stake A (Fig. 19). This latter group of tests was assigned provenience numbers 8A through 11A.

The subsurface testing indicated that all historic remains occurred in the upper 20 centimeters of the site, which was subjected to plow disturbance during late historic times. Prehistoric deposits extended below the historic deposits to a depth of 45 centimeters. No cultural features were discovered during the testing, although large natural deposits of sandstone

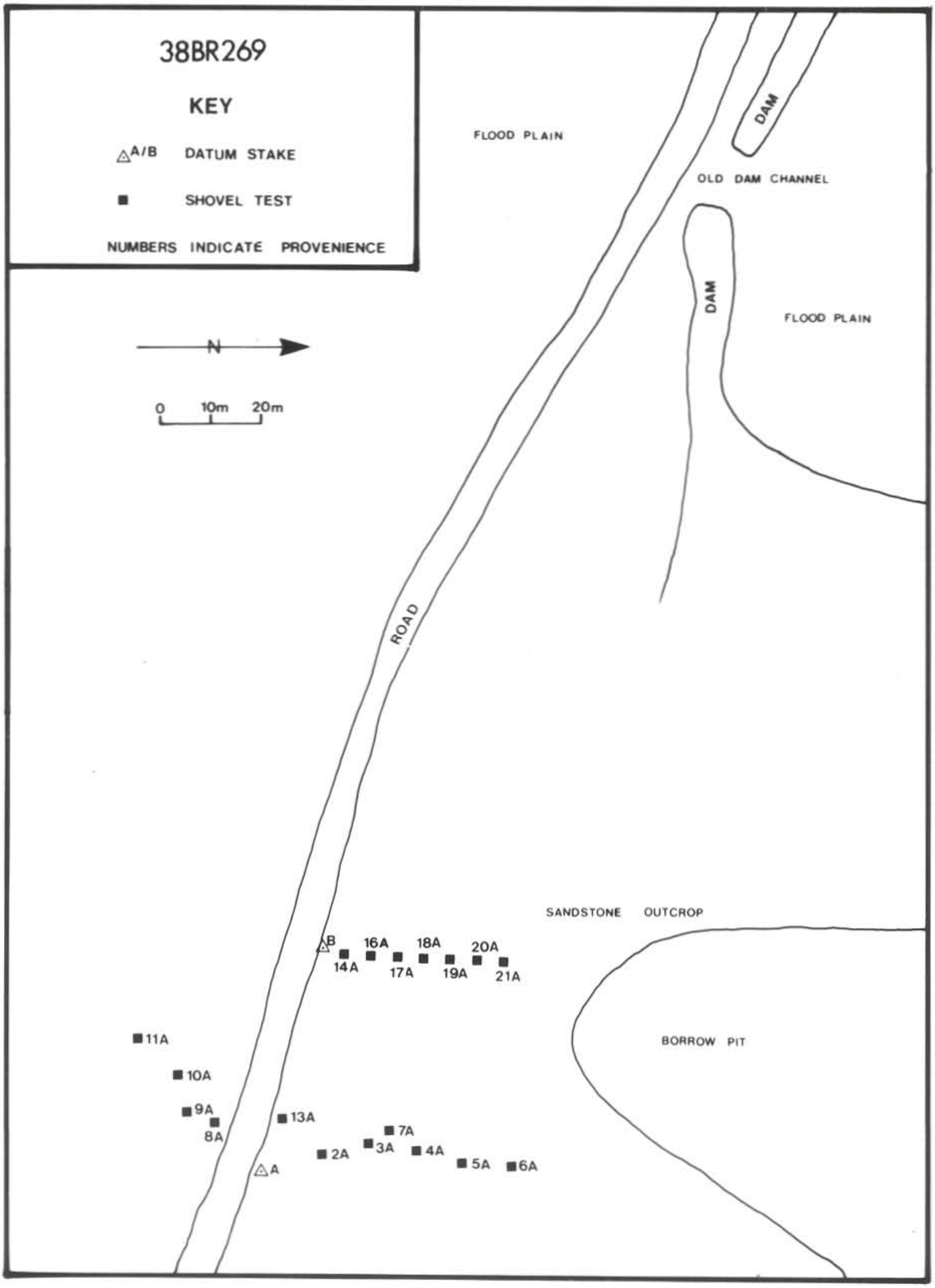


Figure 19: General site map of 38BR269 indicates the relationship between the upper portion of the site, datum A, the lower portion, datum B and the mill dam.

were found throughout the site. A small basal fragment of a basally thinned point was found in provenience 11A at a depth of 10 centimeters. This artifact, possibly associated with the Paleo-Indian or Early Archaic periods, rested upon a large sandstone boulder and appeared to be in a disturbed context. Historic glass and ceramics were also found in the same level, clearly suggesting post-depositional disturbance. This evidence strongly suggests a generally disrupted context throughout much of the site.

Prehistoric artifacts recovered on the surface and from testing include cortical flakes, thinning flakes, chunks, fire cracked rock, other bifaces, utilized flakes, a uniface and a hafted biface. The singular artifact with any potential temporal significance was the aforementioned basally thinned hafted biface. This artifact is a slightly eared, indented and thinned based fragment of an unfluted lanceolate point that was manufactured by the removal of narrow pressure flakes. Although the fragment is too small to identify positively, the technology is similar to that used on Suwanee phase artifacts of the Paleo-Indian period. The large number of chert chunks, cortical flakes and utilized flakes present at the site suggests that the site was a major manufacturing locus.

The historic component of site 38BR269 is the mill dam and road/bridge features across the floodplain (Fig. 19). The mill dam is about 4 meters high and 2 meters wide at the top. It was apparently constructed in 1788 by Stephen Smith (Holcomb 1978: 149). A plat dated 1792 (Barnwell County Plat Book 1: 19) shows a mill pond on the land of Stephen Collins and adjacent to property owned by John Clayton. The mill is next documented in Mills Atlas (Mills 1825) as Milledger's Mill. The Milledger's owned the land in the vicinity, but, ownership of the mill has not been confirmed through archival research. In 1846 a plat (Barnwell County Mesne Conveyence Book DD: 394-396) shows the mill in association with a 10-acre parcel of land referred to as the "negro quarters," a possible reference to site 38BR175/176. Beyond this latter date no reference to the mill and dam is present in the records.

Although the plats do not show a representation of a dwelling near the mill dam, the historic artifacts recovered from 38BR269 date to the mill's earliest recorded use. Artifacts include British brown stoneware (ca. 1690-1775), green opaque wine bottle glass (ca. 1640-1860), creamware (ca. 1762-1820), annularware creamware (ca. 1780-1815), pearlware (ca. 1780-1830), handpainted pearlware (ca. 1780-1820), transferprinted pearlware (ca. 1795-1840), underglaze polychrome bright pearlware (ca. 1820-1840), and fingerpainted pearlware (ca. 1790-1820). The mean ceramic date (South 1977) of these artifacts by frequency is 1801.5 and by weight is 1795.8, confirming that the site was first occupied during its ownership by Stephen Smith and subsequently occupied through the 1840s by other landowners. Although the excavations through test pits at this site are not intensive, the data recovered give some indication of the nature of the inhabitants. First, the absence of pipe fragments suggests a lack of tobacco consumption, at least by smoking. Second, the inhabitants were able to purchase the latest in ceramic table wares. Finally, the absence of brick and sandstone rubble, the latter a common local raw material at the site, suggests the house was furnished with a wattle and daub chimney.

Distributional study of the historic artifact assemblages indicates the presence of three structures: a residence and two outbuildings. The residence and one outbuilding are situated 150 meters east of the dam while the second outbuilding is situated 50 meters from the dam. Both outbuildings probably date to an occupation of the site, postdating the initial erection of the residence on the basis of specific artifacts.

The mill structure was not found. From the construction of the dam, it seems that the mill would have been placed on the eastern side of Steel Creek. There is a break in the dam not far from the high ground on the eastern side where a wheel could have been located. The break does not appear to be due to any other use or disturbance as it is 30 to 40 meters from the main channel of Steel Creek.

Site 38BR269 contains important prehistoric and historic occupational information in the Savannah River Project area. Of particular interest are the presence of the possible Paleo-Indian Period hafted biface and the wealth of late eighteenth and nineteenth century data. With the possible exception of the dam, the increased water in Steel Creek will not affect the terrestrial portion of the site. The dam, although located within the floodplain, has been previously subjected to flooding during the operation of the "L" Reactor. Observation of the basal areas of the dam indicates no adverse erosion from the flooding, as might be expected. For these reasons, no predicted impact is expected at this location.

Site 38BR271

This site is a small, thin scatter of lithic debris set on a terrace-ridgenose overlooking Steel Creek approximately 2 kilometers from the junction of Steel Creek and Savannah River. Troup sandy loam, terrace phase, is the soil found throughout the site area. The vegetation is mixed longleaf pine, white oak, laurel oak and sweetgum. The proximity of the site to the extensive swamp of the Savannah River floodplain would have offered a wide diversity of food resources.

This lithic scatter was discovered during the 1981 intensive survey. It was collected using an intensive surface gathering strategy of all visible artifactual materials on two separate visits. The absence of ground cover over seventy-five percent of the site permitted a rather complete collection and an accurate measure of the site's extent. On the north-south axis the site measured 40 meters; on the east-west axis, 60 meters. Depth of cultural materials was not derived because subsurface testing was not conducted. Due to the distance of the site from the area of potential flooding and its elevation above the floodplain, the site will not be subject either to erosion or inundation damage by the increased water levels in Steel Creek.

The sample of artifacts gathered from the surface includes a cortical flake, a chunk, thinning flakes and an other biface. This limited assemblage seems to represent a brief activity probably associated with early stage lithic tool manufacture.

Site 38BR286

First observed on color infrared aerial photographs of the Steel Creek floodplain, this site is an historic period road and bridge approach originally commissioned by the Winton County justices in October 1786 (Holcomb 1978: 4). This road and bridge approach was part of a larger road between Silver Bluff and Matheses (Mathews) Bluff road. The road was known as the Augusta Road and the bridge was known as the Steel Creek Bridge, according to Mills Atlas of 1825 (Mills 1825) and the F. F. Dunbar plat (Barnwell County Plat Book 6: 36).

In the floodplain the road and bridge approaches measure between 4 and 5 meters in width; the upland areas average 7 meters in width. The overall path of the 1786 road can be observed in Figure 1 as parts of modern dirt roads A-17.1 west of the creek and A-18 east of the creek. This corridor corresponds perfectly with the road illustrated in the Mills Atlas map of the Barnwell District (Mills 1825) (Fig. 2).

Figure 11 shows the expected maximum water level in the Steel Creek floodplain as photographed in 1966. The water passes through the central area of the bridge approach in the vicinity of the bridge pilings, which could not be located during low water periods in 1981. This nineteenth century feature will not be affected by the increased water flow.

Site 38BR288

This is an historic mill and dam with no associated miller's house in the immediate vicinity. According to Mills Atlas, the mill was in operation as early as 1818 (See Fig. 2). A plat dated 1829 (Barnwell County Deed Book R: 75), belonging either to William Dunbar or the estate of Samuel Dunbar, shows both of them as owning the land, which is possible since they were brothers. In 1843 the land is owned by G. R. Dunbar (son of William), then in 1846 by William Ashley who sold it to Joseph Ashley in 1876 (Barnwell County Deed Book 4S: 87; 9B: 786). The manuscript census, Products of Industry, 1850, indicate that the site was a saw mill operated by 2 men. The dam itself is approximately 5 meters high and 3 meters wide at the top. There are several timbers remaining in the water that are barely visible above the present water level. They appear to be square and either 20 x 20 centimeters or 26 x 26 centimeters and are 5 to 7 meters apart in the shape of a square.

Site 38BR291

This site is located on Chaney Road about 200 meters south of its intersection with A-14.1 and dates to the late eighteenth and early nineteenth centuries. The site is situated on a ridgeslope next to an old road about 125 meters west of Steel Creek. The overall dimensions of the artifact scatter are 50 meters (north-south) by 30 meters (east-west). The on-site soil group is the Orangeburg and Red Bay class, characterized by 10 to 20 centimeters of dark brown loamy sand over orange sand. Artifacts were recovered within the upper zone of the loamy sand. Chaney Road bisected the site with pine plantation on the west side and mixed hardwood and pine on the east.

First recorded in 1978, the site has been partially excavated over the past three years on a part-time basis. The first stage of testing involved the excavation of 34 post hole tests in a cruciform pattern running along the cardinal directions. Fifteen additional post hole tests were placed arbitrarily in areas of the site not covered by the cruciform sample. Density data from the 49 test holes were plotted on maps to determine areas of higher material culture concentration and were used to determine the location of 1 x 1 meter test pits. By April, 1979, eight test pits were excavated on the east side of Chaney Road. During this time road maintenance activities disturbed the excavations. During the past 12 months, five additional test units were excavated (two 2 x 2 meter and three 1 x 1 meter) as well as four shovel test pits (Fig. 20).

Archival research was unable to determine the initial colonial period ownership of the land, but, evidence does suggest that William Dunbar may have been the first owner. Documents indicate that William Dunbar's son, George R. Dunbar, sold the land to William Ashley in 1846, who subsequently sold the parcel to Joseph Ashley in 1876. A land plat (Barnwell County Deed Book 45: 87) dated 1877 shows this site as a two-story residence immediately east of the old road, probably Chaney Road. Evidence derived from artifacts does not confirm an occupation beyond 1840. Comparing measurements from the plat map to current maps, however, confirms that the site was indeed the Dunbar residence.

The predominant artifacts collected from the site include white salt-glazed stoneware (ca. 1720-1805), scratch blue salt-glazed stoneware (ca. 1765-1795), refined agateware (ca. 1740-1775), overglaze-enamelled creamware (ca. 1765-1810), creamware (ca. 1762-1820), pearlware (ca. 1780-1830), underglaze blue hand-painted pearlware (ca. 1780-1820), ironstone/whiteware (1813-present), westerwald stoneware (ca. 1700-1775), green opaque wine bottle glass, pipe fragments, a British gun flint, wrought nails, and cut nails. These artifacts indicate that the main structure was probably built prior to 1800 and had a wattle and daub chimney. When brick became available, the structure appears to have undergone modification as evidenced by cut nails and the presence of bricks. The mean ceramic date was 1790.9 (South 1977), using sherd frequency, and 1790.2, using weights. The few pieces of pipe stem, while not of sufficient number to be completely reliable, give a mean date of 1771.2 (Binford 1972). The assemblage composed primarily of architectural and household remains, suggests that the site was indeed a home site.

Site 38BR291 has been disrupted by land use activities dating back to the nineteenth century. No evidence of foundations or other architectural features were uncovered during considerable testing at the site. The remains at the site consist mainly of artifact concentrations in secondary (i.e. disturbed) contexts. Although these materials allow for dating and functional classification of the site, no distributional information is acceptable. For this reason, the site cannot be considered to be capable of yielding significant information regarding the historic period.

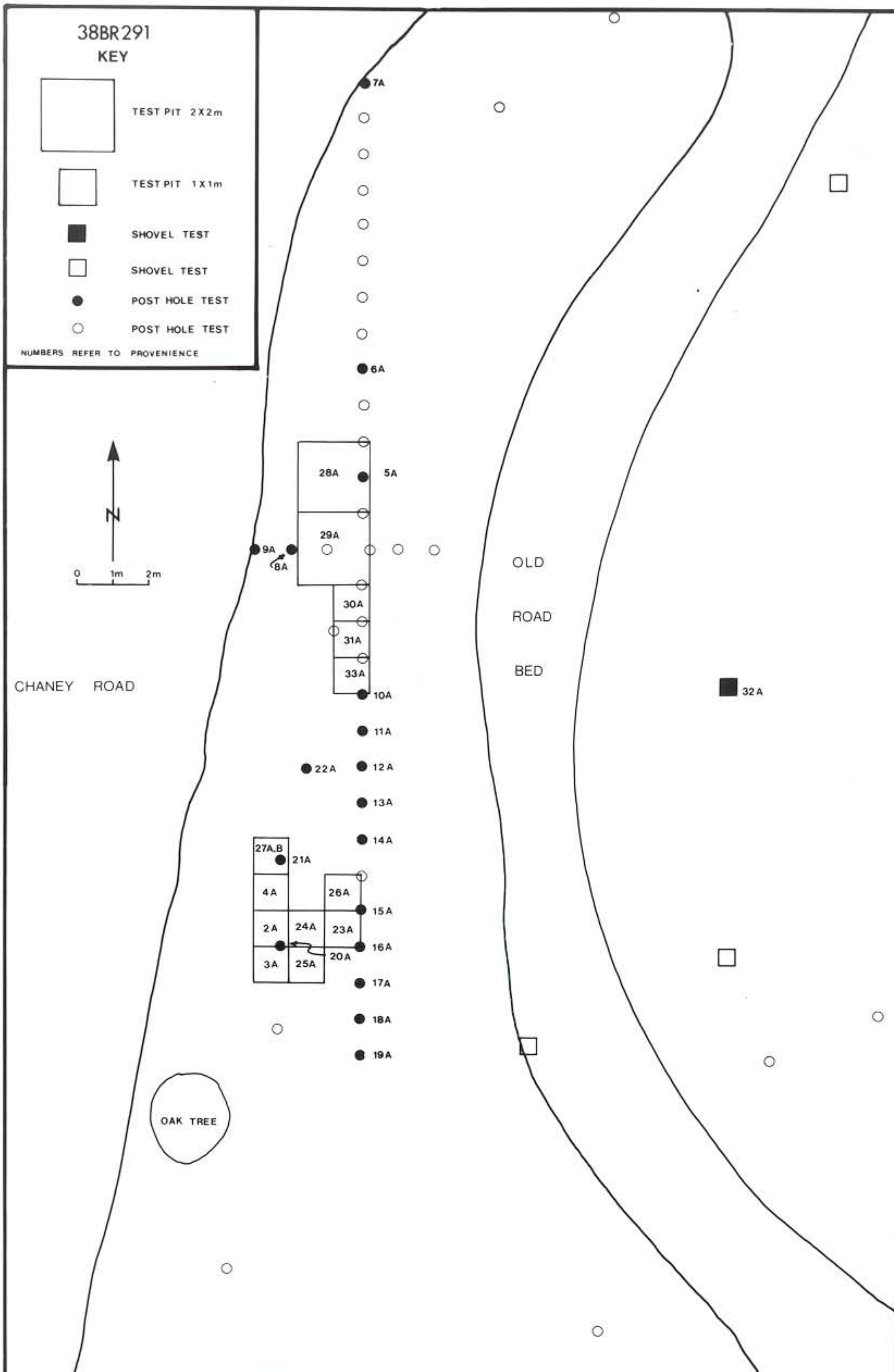


Figure 20: Site map of 38BR291 indicating proveniences.

PREHISTORIC RESEARCH RESULTS

The analysis of archeological data recovered during the study was undertaken in light of the proposed general model of settlement offered in an earlier section. Since the survey was restricted geographically to the Mesic Terrace zone and the Tributary-Bottomland Zone, a complete evaluation of the model is beyond the scope of the study. However, by examining the data from the survey it should be possible to determine the overall suitability of the model for these two zones. In order to evaluate the model two areas of analysis are addressed in the study.

Temporal variability in the occupation of the watershed is examined by means of diagnostic hafted bifaces and ceramic surface treatment. By determining the relative time of occupation for specific sites it should be possible to address the question of settlement change through time that would allow for a more accurate understanding of changes in adaptive strategy. Since the general model of settlement presented in this study does not deal with temporal variability, the information derived from this analysis has the potential for allowing refinements in the model. When combined with intersite functional variability, the temporal patterns can be used to reconstruct the trends in prehistoric human land use.

Functional variability in assemblages is addressed by specific tool types and the association of these types at sites. Exact determinations of the total range of activities conducted at a site are affected by conditions of preservation and post-occupational disturbance, so in this study an attempt is made to approximate the activities through the use of a multiple assemblage analysis. This analysis begins with the detailed analysis of tool classes and ends with a comparison of intersite assemblage variability along multiple class parameters. That is, each site is assessed for functional variability based not on the presence or absence of specific artifact types but rather on the assemblage as a whole. Since debitage and other expedient artifact classes have a higher probability of discard at sites, these classes will receive equal consideration with hafted bifaces and other curated tools. The results from this analysis will be used to determine the nature of functional variability at sites and to compare the locational variability among sites.

The combined analytical approach of temporal and functional aspects of prehistoric artifact assemblages should permit the evaluation of the archeological resources of the study area. Each site can be evaluated with respect to its content and its potential for addressing questions of human settlement and adaptation. Such general research areas will form the basis for determining the scientific importance of individual sites.

Temporal Analysis

Two types of data were used in assigning chronological affiliation to the sites discovered during the survey. First, specific formal types of hafted bifaces with known temporal ranges were used to identify the presence of occupations beginning with the Paleo-Indian and continuing through the Mississippian periods. As discussed in the methods section, the formal variability in hafted biface morphology permits the ascription of time to specific artifact classes through cross-dating. Second, ceramic temper and surface treatment were used to determine the relative time of occupation for the Late Archaic through Mississippian periods. Due to more refined dating of ceramic surface treatment, this chronological method has the potential for being a sensitive index of time. Detailed discussions of the specific surface treatments considered in the study are provided in the methods section. In the absence of carbon samples for radiometric dating, the hafted biface and ceramic surface treatment data sets are the only bases for the assignment of temporal affiliation.

Hafted Bifaces

Twenty-five hafted bifaces were recovered during all aspects of fieldwork in the study area at seven sites. Of this sample nine were too fragmented to determine reliably the specific type. Only two hafted bifaces were recovered in an unbroken condition. The remaining 14 hafted bifaces, although fragmented, could be assigned to specific groups. This analysis, therefore, relies on 16 tools to determine temporal affiliation. Data for these artifacts are presented in Appendix V.

The oldest occupation within the study area was during the Early Archaic at Site 38BR44, which contained a Palmer point fragment. Kirk points from sites 38BR44 and 38BR55 suggest an Early Archaic-Middle Archaic occupation. The Middle Archaic is represented by a single Morrow Mountain point at Site 38BR38. Three sites (38BR44, 38BR55 and 38BR102) contained Savannah River Stemmed points, which are a hallmark of the Late Archaic period. A single Otarre Stemmed point from Site 38BR38 constitutes the only hafted biface evidence of the transitional Late Archaic-Early Woodland episode. Yadkin triangular points were recovered from sites 38BR38, 38BR55 and 38BR187, suggesting Woodland Period occupations at these sites.

The hafted bifaces demonstrate a temporal span in the study area ranging from the Early Archaic through the Woodland periods. The co-association of different types at single sites (i.e. 38BR38, 38BR44 and 38BR55) suggests that these locations were preferred occupation places during most of prehistory. This evidence of multiple occupations suggests, further, that the general area was a rich resource region for hunter-gatherers. This evidence, combined with the ceramic surface treatment data, will provide a basis for describing the occupational history of the study area.

Ceramic Surface Treatment

Fourteen distinctive ceramic surface treatments were recognized on sherds recovered during the study. The ceramics were sorted by objective descriptions of surface treatment that can be ordered chronologically. The data derived from these observations are presented in Appendix VI. In all cases sand was the primary temper in the ceramics with no recognizable fiber or sherd temper. Sand temper in the study area and Savannah River region is the major temper type throughout the Woodland Period beginning with Thom's Creek and continuing through the Mississippian Period (Stoltman 1974).

From the sample of sherds derived from the study, the predominant surface treatment was plain with recognizable texturing or patterning. Since plainwares have not been specifically attributed to particular time periods except through association with decorated wares, the only chronological conclusions to be drawn for sites with exclusively plain sherds is a Woodland/Mississippian affiliation. Thus, only those sites with distinctively decorated sherds were assigned to more specific segments of the Woodland Period.

The earliest Woodland occupation in the study area is recognized by the occurrence of punctate pottery with sand temper, which is known as Thom's Creek pottery (Trinkley 1974). This type of pottery was recovered from sites 38BR55 and 38BR259. Other Early Woodland types of surface treatment of a later period are the various simple stamped and linear check stamped designs associated with Refuge and Deptford. Sherds belonging to these types were discovered at five sites (38BR38, 38BR55, 38BR102, 38BR259, and 38BR268). Bold check-stamped and bold cord-marked treatments are generally characteristic of the Middle Woodland period. These types were found at sites 38BR38, 38BR55, and 38BR187. Late Woodland period pottery, characteristically decorated with fine check-stamped and fine cord-marked texturing, was recovered from sites 38BR38, 38BR55, 38BR187, and 38BR265. Two sherds with incised patterns were recovered at sites 38BR45 and 38BR55. Only Site 38BR263 contained exclusively plainware, indicating an occupation sometime during the Woodland, although extant data do not allow more specific assignment.

Based on the ceramic data, nine sites were assigned to prehistoric ceramic era occupations. Early Woodland sites consist of 38BR38, 38BR55, 38BR102, 38BR259 and 38BR268. Middle Woodland sites consist of 38BR38, 38BR55, and 38BR187. Late Archaic sites are 38BR38, 38BR55, 38BR187, and 38BR265. The two possible Mississippian sites are 38BR45 and 38BR55. The only non-specific Woodland Period site is 38BR263. The majority of sites bearing ceramic information contained evidence of multiple occupation, and this occurrence of two or more Woodland occupations strongly suggests that there was a regular re-use of specific locations. This rich evidence of Woodland period habitation in the study area adds further support to the conclusion that the region was a wealthy resource base during most of prehistory.

Temporal Analysis Summary

Eleven sites in the study area yielded information relating to the period of occupation. Twenty-three specific prehistoric occupations were identified at these sites ranging from Early Archaic through Mississippian. Only five prehistoric sites contained no chronological information (i.e. 38BR56, 38BR112, 38BR264, 38BR269, and 38BR271). Each of these is a lithic scatter without any temporally diagnostic data. When this high proportion of sites with chronological data is compared to the model, the expectation of large multiple occupation sites has been met. This follows from the environmental richness of the terrace and tributary zones, and the proximity of these zones to the uplands. Table 7 shows the occupational history for the sites in the study.

Early and Middle Archaic components at site 38BR38, 38BR44 and 38BR55 indicate a substantial early occupation in the watershed. However, the predominant occupations as recognized by the study were the Late Archaic and Early Woodland, which are represented by 10 components. Following the Early Woodland, the occupation in the watershed appears to be reduced, as suggested by the smaller number of Middle and Late Woodland components. Finally, the only Mississippian component in the watershed (site 38BR55) suggests a greatly reduced use of the area during the most recent prehistoric period. Although the results of this survey cannot be expected to yield overall patterns of human land use change, it is important to note the rise and fall of occupation in the watershed that reached its apex during the Late Archaic and Early Woodland.

TABLE 7

OCCUPATIONAL HISTORY IN THE STEEL CREEK VALLEY
AS REPRESENTED BY THE SURVEY RESULTS IN THE STUDY

SITE	Early Archaic	Middle Archaic	Late Archaic	Early Woodland	Middle Woodland	Late Woodland	Missis-sippian	Lithic Prehistoric	Ceramic Prehistoric
38BR38		x	x	x	x	x			
38BR44	x	x	x						
38BR45									x
38BR55	x	x	x	x	x	x	x		
38BR56								x	
38BR102			x	x					
38BR112								x	
38BR187				x	x	x			
38BR259				x					
38BR263									x
38BR264								x	
38BR265					x	x			
38BR268				x					
38BR269*								x	
38BR271								x	

* 38BR269 contained a basal fragment, which could be from a Suwanee Point, but too little was present to make a definitive statement.

Site Function Analysis

Data relating to site function are more complex and numerous than those used in temporal analyses. Since each artifact, regardless of formal elegance or style, is assumed to represent some form of activity within the site context, no artifact class can be ignored in attempts to understand intra- and inter-site functional variability. The most mundane artifact classes (i.e. debitage and utilized flakes) offer the most sensitive indices of overall site function. Further, an approach to assemblage analysis is presented that involves the consideration of multiple artifact categories to infer functional similarities and differences among sites. The overall purpose of these analyses is the thorough examination of assemblage variability through the study of individual artifact classes and combined assemblage information.

Eight separate data sets are examined in this study: debitage, unifaces, utilized flakes, hafted bifaces, other bifaces, other tools, pottery, and thermal alteration. Information from each of these categories can be used to infer site function. Each is presented separately with specific inferences while a complete assemblage discussion follows.

Debitage Analysis

Debitage, the debris that results from lithic tool manufacture and modification, is by far the most common artifact type found during research in the Savannah River region. Attempts have been made by Hanson and Most (1978) and House (1976) to derive useful information regarding site function from debitage. Whole flakes were measured using a ranked size scale and were tabulated accordingly. The tabular format (Appendix II) of each site's debitage permits comparisons among the site data.

The expectations regarding variability in debitage size are derived from research initiated by Newcomer (1968). As a biface is reduced from a raw cobble to a specific implement form, the debitage (i.e. flake) size will become increasingly smaller. Initial reduction would have involved the detachment of larger flakes in order to facilitate subsequent flake removal and implement shaping. The large flake associated with this early reduction stage would also tend to have cortical material on the dorsal surface. As the bifacial implement is further reduced in size and formed into the desired shape, the associated flakes will tend to be much smaller since smaller amounts of raw material are removed using more precise manufacturing techniques (i.e. soft hammer percussion and pressure flaking). Thus, under this model of biface reduction and that suggested by Hanson and Most (1978) and House (1976), it is expected that the occurrence of large debitage at sites is indicative of initial tool (i.e. biface) manufacture, while the presence of medium and small debitage is evidence of final tool preparation and the maintenance of tools. In all likelihood the occurrence of the larger debitage is expected to be almost always associated with smaller flakes, since tool manufacture probably took place from initial reduction through final tool shaping at a single location. On the other hand, small flakes could have been generated in the absence of large flakes as part of tool maintenance (e.g. re-edging and tool salvage) or curation process. In this case only smaller flakes would be expected in some small sites, which could represent limited activity loci associated with specific resource procurement and processing.

Based on the expectations derived from this model, certain patterns in debitage recovered from the Steel Creek survey can be proposed. As noted, the debitage was measured by flake area or size in all cases where whole flakes were recovered. Partial flakes offer limited data in the reduction sequence model. Using the eight debitage size classes, cumulative frequency (i.e. percentage) graphs were completed for each site using information from all proveniences (Fig. 21). These plotted sites with curves peaking toward the left portion of the graph are ones where the predominantly smaller debitage was present; those peaking toward the middle and right portions of the graph contained larger debitage. To simplify the graph, two types of debitage patterns seem to explain the variability in size represented by the 15 sites used in the study.

The first group of sites is made up of debitage assemblages that are predominantly small. These sites are 38BR45, 38BR56, 38BR102, and 38BR265. Most of the flakes, greater than 50%, are in the very small categories and none are larger than size class IV. Under the expectations for debitage these sites would probably be tool maintenance loci at which the occupation span was limited to only a short duration.

The other group is composed of sites with both large and small debitage indicative of tool manufacture and maintenance. These sites are 38BR38, 38BR44, 38BR55, 38BR112, 38BR187, 38BR259, 38BR263, 38BR264, 38BR268, 38BR269 and 38BR271. Although large flakes (i.e. size class V and above) never constitute a majority of the debitage, their presence at the sites is significant. Unlike the small flakes, large flakes are never common during the manufacture of bifaces because they are primarily removed to rough out the implement. Small flakes are more numerous since they are removed commonly during the more controlled tool-forming process. Furthermore, many large flakes are expected to have been used as blanks for flake tools and smaller bifaces. Thus, the simple presence of the larger flakes can be argued to represent initial manufacture, a task expected to have been most common at base camps or habitation sites.

From this analysis of debitage a classification of sites into two groups was proposed, which attempts to segregate distinct technological aspects related to archeological site function. As stated earlier, debitage nor any other single artifact category can be used to complete settlement systems. Rather this analysis provides synthetic information suitable for comparison with other categories. Of importance in the debitage analysis is the distinct contrast between the two types of debitage patterns. The group of sites with smaller debitage have a surprising absence of large flakes, while the other category contains sites with size curves representing most size classes.

Utilized Flakes

This category of lithic artifacts is composed of flakes that have been used without previous modification by prehistoric people. These are recognized by the presence of small flake scars along edges that have been used as cutting and/or scraping implements. Basically, this class of tool

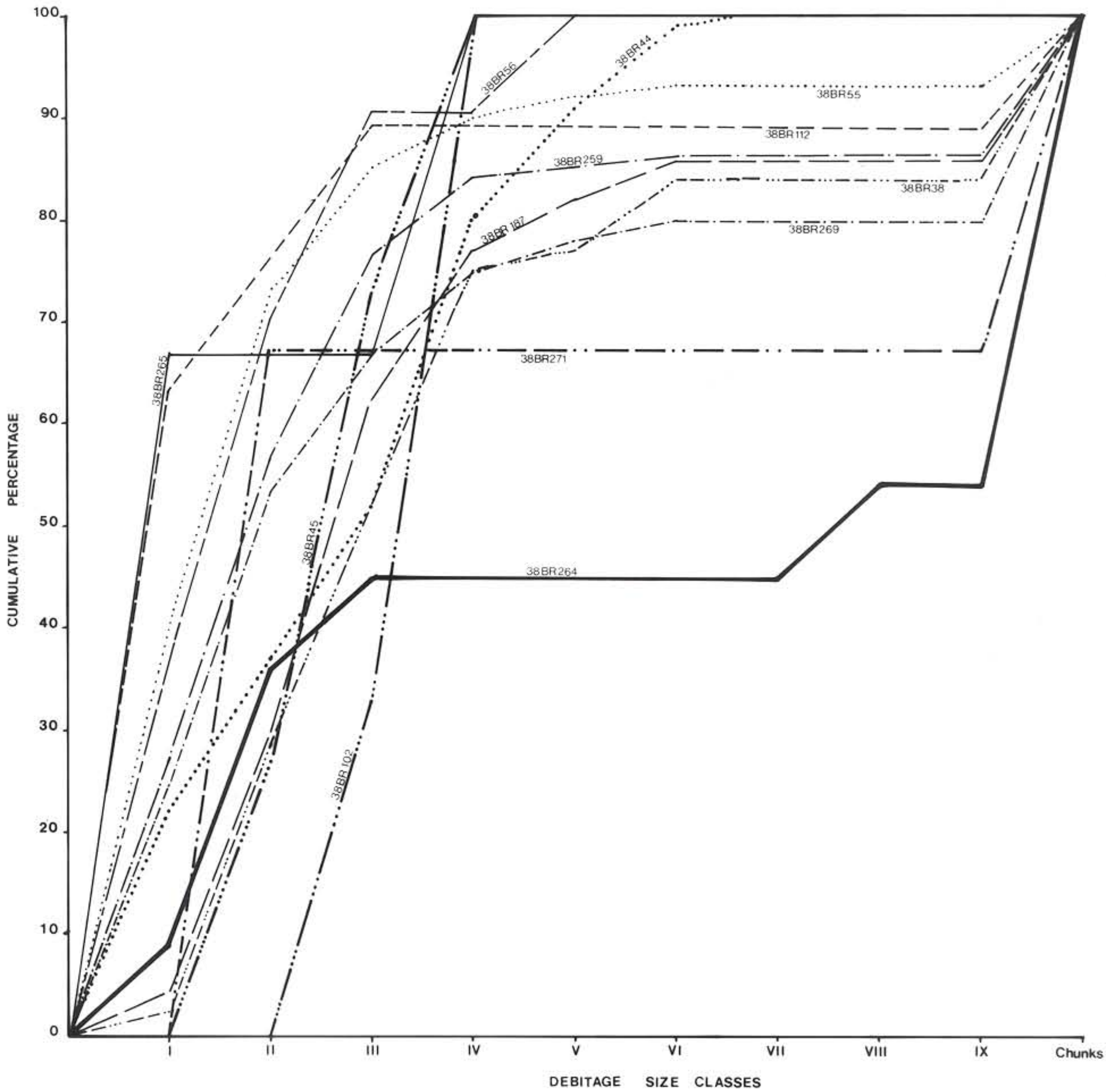


Figure 21: Debitage size curves. (i = 1 - 100mm^2; II = 101 - 225mm^2; III = 226 - 400mm^2; IV = 401 - 625mm^2; V = 626 - 900mm^2; VI 901 - 1225mm^2; VII = 1226 - 1600mm^2; VIII = 1601 - 2025mm^2; and IX = 20206mm^2+.

includes all debitage that has been used subsequent to removal from a biface or core. Since little formal modification was present on utilized flakes, it would seem that these tools were expedient, that is, not maintained for long durations. Most use wear on the tools suggests a single episode of use after which the object was discarded. For this reason, utilized flakes should provide an excellent index of site function since they would be regularly discarded at the location of use rather than being carried away to another site. This was the basis of the following analysis.

Two major attributes of utilized flakes were considered for use in the functional analysis. Edge angles were measured for each utilized edge. In the event that a single object had multiple use edges, each was measured and recorded individually (see Appendix III). Edge form was recorded using four descriptive categories: straight, incurvate, excurvate, and denticulate. These two attributes of flake tools have been demonstrated to be most sensitive in determining the range of possible use for any specific implement (Wilmsen 1968; Semenov 1964).

Based on research of lithic tool function, a general classification of utilized flake use was developed that combines information from edge angles and edge form into a single matrix of potential utilization (Rick 1980). Five types of edge angles were discriminated on the basis of functional suitability: Type A (1^{o} - 23^{o}), Type B (24^{o} - 42^{o}), Type C (43^{o} - 62^{o}), Type D (63^{o} - 80^{o}), and Type E (greater than 80^{o}). These five classes of edge angles approximate the ranges of use defined in experimental studies and archeological samples. Edge form was divided into the four categories mentioned above. Each form has certain functional advantages and limitations that restrict its potential use. For example, a denticulate, or serrated, edge would be inappropriate for fine cutting but would serve well in vegetable shredding. By the same token, a straight edge would be well adapted to fine cutting, but not for hollowing out a wooden bowl. When edge form is considered in conjunction with edge-angle classes, a classification of utilized flake edges with functional implications can be derived.

Table 8 presents the classification format for utilized flakes used in this analysis. Twenty different functional types are shown in the table. The main functional categories are fine cutting, general cutting, sawing, heavy cutting, scraping, shredding, and woodworking. All tool edges with edge angles in excess of 80^{o} are considered to have been exhausted. Given the functional correlates of the edges in the table, a specific functional edge type at a site would indicate a specific activity. Further, the more diverse number of edge types would indicate a more varied range of activities. Thus, by analysis of utilized flake edge, it should be possible to construct an accurate diversity index of the sites recovered in the survey.

Two hundred and twenty-six utilized edges were recognized in the sample from 10 sites in the Steel Creek Survey. Table 9 presents the classification of these edges using the edge angle-edge form matrix. Most common among the edge forms is the excurvate, which comprises 85 of the 226 specimens examined. Straight (74) and incurvate (64) were also very common. Denticulate edges were very rare, suggesting the general lack of sawing and shredding functions at the sites. The sample of edge angles, when examined uni-dimensionally (Fig. 22), indicates a clear multi-modal

TABLE 8

CLASSIFICATION FORMAT USED TO DETERMINE PROBABLE UTILIZED FLAKE FUNCTIONAL TYPES (adapted from Rick 1977)

EDGE FORM TYPE	EDGE ANGLE CATEGORY (DEGREES) 1-23°	24-42°	43-62°	63-80°	81°+
Straight	Fine Cutting	General Cutting	Heavy Cutting/ Scraping	Bone & Wood Scraping	Exhausted
Incurvate	Fine Cutting	General Cutting	Light Wood Scraping and Heavy Cutting	Wood Scraping	Exhausted
Excurvate	Fine Cutting	General Cutting	Hide Scraping/ Gouging	Heavy Wood Working	Exhausted
Denticulate	Saw Cutting	Saw Cutting	Vegetal Fiber Shredding	Vegetal Fiber Shredding	Exhausted

TABLE 9

UTILIZED FLAKE CLASSIFICATION FOR ALL SITES RECOVERED IN THE STEEL CREEK SURVEY

EDGE FORM TYPE	EDGE ANGLE CATEGORY (DEGREES) 1-23°	24-42°	43-63°	63-80°	81°+	Total
Straight	7	28	24	12	3	74
Incurvate	10	12	31	7	3	64
Excurvate	13	26	30	15	1	85
Denticulate	0	1	0	2	0	3
Total	30	67	85	36	7	226

pattern predicted by the functional classification table. This pattern of modality supports the expected 5-part division of edge angles. When these edge-angle data are examined in Table 9, certain functional patterns are evident.

First, the relative scarcity of exhausted utilized flakes supports the contention that this tool class is expedient. If utilized flakes were curated and maintained over a period of time, substantially more exhausted edges would have been recovered. Instead, only 7 of 226 edges were exhausted. All others were still suitable for functional application, giving support to the hypothesis that utilized flakes were indeed short-lived implements employed for a specific purpose and discarded.

Second, the 43°-62° edge-angle category that is best suited for heavy cutting and scraping was the most common, with 85 edges, while the 24°-42° category was next, with 67 edges. The relatively high proportion of tools in these categories suggests a pattern of cutting and scraping functions to be most common during the prehistoric occupation of the area. Fine cutting (1°-23°) and heavy scraping (63°-80°) were less common, with 30 and 36 edges, respectively. This composition of edges from the survey indicates a diverse set of activities in the survey area associated with the processing of a broad range of natural materials.

Third, the relative homogeniety of edge-angle distribution by edge form exhibited in Table 9 suggests a general lack of discrimination according to form. Since edge angle is the more important attribute of utilized flakes due to its value of sharpness and strength associated with the angle, edge form will not be considered further in this examination. Rather, edge-angle distributions will be presented for each site with the following functional correlates attributed to each: fine cutting (1°-23°), general cutting (24°-42°), heavy cutting and scraping (43°-62°), and heavy scraping and woodworking (63°-80°). These categories will be referred to by capital letters as follows: A = fine cutting, B = general cutting, C = heavy cutting and scraping, D = heavy scraping and woodworking, and E = exhausted.

As mentioned above, the presence of specific edge-angle categories at a site can be used to infer activity. A review of the edge-angle data from the 10 sites with utilized flakes indicates a varied activity pattern at the sites. Table 10 presents these data.

Although the frequencies vary significantly across the sample, probably as a function of duration of occupation, distinctions in activity can be discriminated by inspecting the occurrence of utilized flake edges in each category. When the presence or absence of flakes in each of the five categories is considered, three activity patterns can be noted. First, high diversity in activity is noted for sites with four or five of the edge-angle classes represented. Five sites (38BR38, 38BR55, 38BR187, 38BR259 and 38BR269) exhibit this pattern. Also, these sites contain at least 15 use edges. Both of these facts suggest that the sites were used for cutting, scraping and, probably, woodworking purposes over a relatively long period of time. Second, a moderately high activity diversity seems to have obtained at three sites (38BR44, 38BR45 and 38BR268), which have three edge classes each. The two former sites contained edges in categories B, C

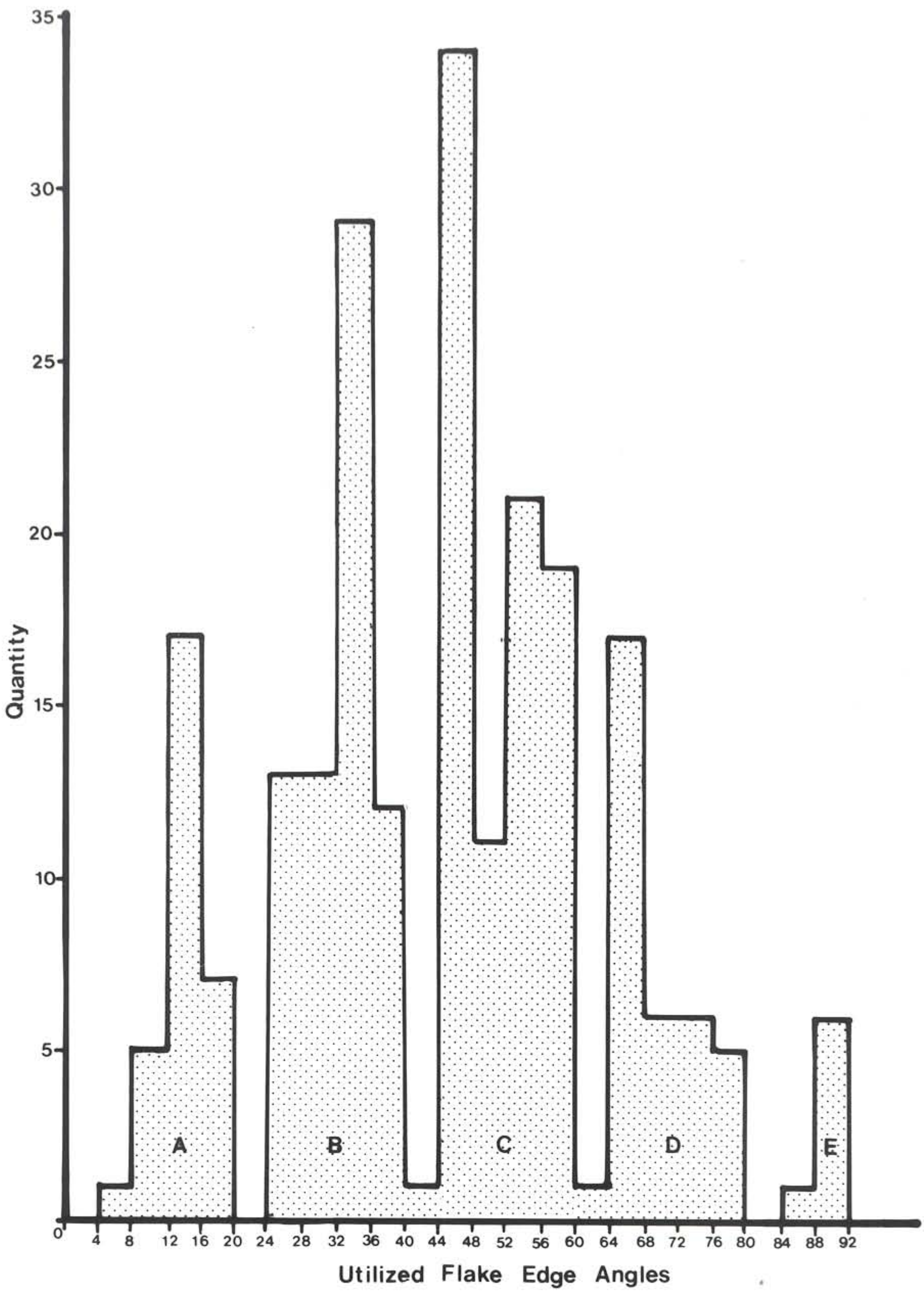


Figure 22: Utilized flake edge angle frequencies. (A = fine cutting; B = general cutting; C = heavy cutting and scraping; D = heavy bone and wood working; and E = exhausted).

and D, while the latter contained categories A, B and C. This moderate edge diversity suggests somewhat limited functional variability at the sites over relatively shorter periods of occupation. Another fact attesting to this hypothesis is the absence of exhausted edges. Third, a very limited activity pattern is noted at two sites (38BR263 and 38BR264) that contained only examples of category A, the fine cutting type. The fact that only one specimen occurred at each site adds support to the idea of limited use. These two sites are, therefore, considered to represent very brief episodes of use probably associated with meat processing due to the fine cutting angles of the tools.

TABLE 10
EDGE ANGLE DISTRIBUTIONS FOR UTILIZED FLAKES
FOR SITES IN THE STEEL CREEK SURVEY AREA

	EDGE ANGLE CATEGORIES					
SITE	A	B	C	D	E	TOTAL
38BR38	1	5	7	7	0	20
38BR44	0	2	14	4	0	20
38BR45	0	3	1	1	0	5
38BR55	15	32	32	11	1	91
38BR187	0	5	12	9	3	29
38BR259	9	14	11	3	3	40
38BR263	1	0	0	0	0	1
38BR264	1	0	0	0	0	1
38BR268	1	1	1	0	0	3
38BR269	2	5	7	1	0	15

In review, the analaysis of utilized flake edges has revealed a set of three distinct patterns in the Steel Creek sample. Each pattern represents specific task and function variability, which, when combined with the other functional data sets, provide useful criteria for posing accurate reconstructions of inter-assemblage variability. Of value in this analysis is the demonstration that utilized flakes can provide very informative evidence regarding activity diversity at sites.

Uniface Analysis

Unifacial tools differ from utilized flakes in that they exhibit evidence of technological modification for the purpose of preparing a use edge prior to utilization. This class of tool is used for scraping and woodworking functions since these types of use require strong, stable edges. Because these flake tools are so similar to utilized flakes, Table 8 can be used as the basis for inferring function to specific combination of edge angle and edge form. For the most part, unifaces are formal tools; that is to say, the objects have similar forms within each edge angle-edge form type. Some exhibit modification to enable the hafting of the implement on a handle, while others are hand-held. Also of importance is the fact that these tools tend to be curated and maintained by contrast with utilized flakes. For this reason, relatively more exhausted specimens are found in sites, and fewer of these tools are found overall.

Only 29 unifaces were recovered during the survey along Steel Creek. Eight sites contained one or more of this class of tool. As expected the lower two edge angle classes were minimally represented, while the 43°-62° and 63°-80° classes comprised the majority of tool edges with nine and twelve, respectively. Exhausted unifacial edges in excess of 80° made up five specimens in the sample. Table 11 shows the breakdown of unifaces by sites. An inspection of this table clearly shows the strong emphasis on high edge angles for this tool category; only 3 or 29 edges were less than 43°. This confirms the expectation that unifaces were used primarily for heavier functions than utilized flakes with an emphasis on scraping. A comparison with Table 10 detailing the utilized flake edges further supports the contention that unifaces were employed less frequently in prehistoric technology than were utilized flakes. Even at such dense sites as 38BR55 and 38BR259 the ratios of utilized flakes to unifaces are 91 to 13 and 40 to 3.

TABLE 11

EDGE ANGLE DISTRIBUTIONS FOR UNIFACES
FROM SITES IN THE STEEL CREEK SURVEY AREA

	EDGE ANGLE CATEGORIES					
SITE	A	B	C	D	E	TOTAL
38BR38	0	0	0	1	0	1
38BR44	0	1	4	1	0	6
38BR55	0	1	5	7	0	13
38BR187	0	0	0	2	0	2
38BR259	0	0	0	0	3	3
38BR263	1	0	0	0	0	1
38BR269	0	0	0	0	1	1
38BR271	0	0	0	1	1	2

The method used to compare the unifaces from these sites differs from that used with the utilized flakes because of the relatively low frequencies recovered. Rather than use diversity, mean edge angle was employed as a measure of the overall edge angle emphasis at each particular site. Three distinct angle groups were revealed through this mean analysis. Site 38BR263, a site with a single uniface, had a value of 20° and is the sole member of the low edge angle group. The presence of a single prepared, acute angle uniface at this site may be related to a function dealing with early meat processing. The second group, composed of sites 38BR44 and 38BR55, has mean edge-angle values of 57° and 61°, respectively. The members of this group are the two sites with the highest number of unifaces and with the broadest range of angle values. This intermediate group may represent diverse processing of vegetal and animal foods, and other non-edible resources (e.g. wood, hides and bone). The final group is composed of sites that have mean values greater than or equal to 70° and have three or fewer unifacial edges. Sites 38BR38, 38BR187, 38BR259, 38BR269 and 38BR271 make up this cluster. Since all the edges from these sites are in the heavy scraping and exhausted range, it is reasonable to infer a technology employing unifaces for heavier work. The presence at most of the sites in this group of more acute angled utilized flakes (cf. Table 11) may account for the relative paucity of these sharper edges in the uniface samples.

Overall, this examination of unifaces suggests that the expectations are in part correct. Exhausted tool edges are more common in this category, while fewer tools are evident. Curation of these tools and possibly specialized functions seem to be the most reasonable explanation. It may be that unifaces were only rarely deposited in the archeological record until they were nearly or completely exhausted, thus creating this observational bias. More information relative to this class of tools in the study area will be discussed in association with the total tool assemblages at the close of this section.

Other Biface Analysis

This tool class was recovered from nine sites in the survey. Specific descriptive attributes for the 28 other bifaces are presented in Appendix IV. Analysis of other bifaces beyond descriptive information is difficult since these implements could have been used as 1) flake cores, 2) blanks and preforms for hafted bifaces, and/or 3) chopping-cutting tools. Given the fact that no lithic raw material sources are known for the immediate area, the flake core possibility is likely. However, at least three of the recovered other bifaces were definitely hafted biface preforms, and many of them exhibited what may be use wear along the lateral margins. Thus, any specific inferences regarding the actual functional utility of this class in the sample would be vague at best.

One important aspect of these tools that has some value for functional interpretation is their presence. Given the size and range of potential uses for other bifaces, they may be viewed as an index of occupational duration. For instance, it is unlikely that this multi-functional tool would be discarded until either broken or completely exhausted. Therefore, the occurrence of these tools should have been directly proportional to either the number of individuals using them at a site or the amount of time spent at the site. So the number of other bifaces may be used as a partial index of occupational intensity whether it be due to the number of inhabitants or duration of occupation, or both.

Using this index for other bifaces, three types of distributions are noted from Appendix IV. First, seven sites (38BR44, 38BR112, 38BR263, 38BR264, 38BR265, 38BR268, and 38BR271) have no other bifaces. Second, four sites (38BR56, 38BR102, 38BR259, and 38BR269) yielded two or fewer other bifaces of which most were broken. Third, sites 38BR38, 38BR45, 38BR55 and 38BR187 each contained four or more other bifaces. Although taken alone this index does not provide any conclusive information, the value of such evidence will be demonstrated in the assemblage summary at the end of this section.

Hafted Biface Analysis

A total of 25 hafted bifaces were recorded during the Steel Creek survey of which only 2 were complete. The temporal value of these tools has already been discussed in a previous section; here the emphasis will be on the value of this class of artifact as a functional index. It can be reasonably assumed that all of the identifiable hafted bifaces recovered in the survey represent hafted cutting tools rather than projectiles due to their overall size. Therefore, the occurrence of these tools in whole or broken form would suggest heavy cutting as an activity. Further, as with other bifaces, hafted bifaces are a curated tool class, which when deposited in the archeological record, indicates occupation intensity.

Seven sites yielded hafted bifaces. Site 38BR55 contained 14 of these tools, however, this number may be biased because of the intensive testing at this location. Nonetheless, this number of artifacts of a curated type suggests a very intense occupation. Two sites, 38BR38 and 38BR44, contained three and four hafted biface fragments, respectively. The other sites, 38BR102, 38BR187, 38BR265, and 38BR269, yielded two or fewer hafted bifaces. None of the remaining sites exhibited hafted bifaces in the artifact samples. If the presence of these tools indicates occupational intensity, then sites 38BR38, 38BR44 and 38BR55 may be considered to represent more intensive occupations. The remaining sites with hafted bifaces may be considered to have occupied for lesser durations.

As a class of artifacts, hafted bifaces indicate trends similar to other tool types with regard to the diversity and intensity of prehistoric activities at the sample of sites from the Steel Creek survey. Their function as all-purpose cutting and butchering tools that were curated would imply both the presence of these activities and a certain occupational longevity at sites in which they occur. This information presented in Appendix V will be combined with the other assemblage data in the final assessment of site function.

Other Tool Analysis

Certain rare tool classes recovered during the survey are combined in this category. Hammerstones, flake cores, axes, steatite artifacts and metates were the other tool types included in this category. The presence of these tools cannot be evaluated in terms of occupational intensity because so few of them are found during survey research. However, the fact that these occur at a site can provide valuable supplemental evidence for interpreting activities.

Hammerstones, tools used for flaking lithic artifacts, provide direct evidence of initial stone tool manufacture wherever they are found. This tool type may be expected to have been used most commonly at large base camps at which tool manufacture and maintenance was practiced. Also, these may be recovered at loci where only tool maintenance (i.e. re-edging) was conducted. One factor that could have affected the deposition of these tools in the archeological record is related to the presence of suitable hammerstone material in the area. This tool type usually consists of hand sized, natural quartz cobbles that show evidence of battering on one or more surfaces or edges. Since such cobbles do not occur universally in Upper Coastal Plain sediments and are therefore moderately scarce, they were probably curated. For this reason, it is expected that these objects would not have been regularly left at the place of use. Instead, they would be entered into the archeological record through loss in the case of whole tools and through discard in the case of broken tools. Thus, the presence of this tool class clearly indicates use at the location but does not mean that the tools were not used at sites where they were not found.

Flake cores are angular nodules of chert material that show evidence of systematic flake removal. These objects served as sources for flakes and did not function in other capacities. Since most of the technology at the sites in question was associated with biface reduction and manufacture, the flake cores are somewhat rare. They are expected to be highly correlated with an industry that employed utilized flakes as a major tool class. Flakes removed from prepared flake cores tend to be more suitable for use as cutting and scraping tools than those removed from bifaces, because the latter are thinner and weaker. Therefore, flake cores can be assumed to represent the occurrence of flake production for flake tool purposes.

Axes, a ground and polished artifact class made from non-local lithic materials, are among the rarest prehistoric artifact type in the region. The scarcity of these tools is due to the high curated nature of the objects. Each ground stone axe would have required days to manufacture and would have had a very long use life compared to any other tool. Thus, these tools would have been highly valued and not subject to careless discard. The single axe found in the survey was a recycled fragment which had been reused as a hammerstone.

Steatite artifacts, in the case of the items found during the survey, were small carved pieces of soapstone of indeterminate form. Such fragments at the Stallings Island site (Claflin 1931) suggest the manufacture and use of steatite bowls or "net weights." Two bits of information can be inferred from such items. First, steatite was usually used only during the Late Archaic Period in this region. Second, steatite tends to occur only at sites which were occupied for long durations as habitations or base camps. Such information will prove useful in the overall formulation of functional variability.

Metates, the final class of other tools, are ground stone objects which served as prehistoric milling stones. The function of these tools in seed and nut processing allows for direct inferences of such activities at sites. Generally, these tools are very large and not easily transported. It is likely that such tools were used at a single location over most of their functional life.

Seven sites yielded other tools. Sites 38BR38 and 38BR265 contained single hammerstones. A single core was found at sites 38BR45 and 38BR187. The axe fragment at 38BR112 was the only example of this artifact located during the survey, and it had been recycled as a hammerstone. Site 38BR259 yielded one example of a metate. The one site that contained more than one other tool in the sample was 38BR55, the extensively tested site. One hammerstone, three cores, two steatite pieces and a metate were recovered. This diversity in other tools adds support to the argument that this site was a large habitation locus.

Thermally Altered Chert Analysis

The artificial alteration of chert through thermal treatment was used by prehistoric technologists to render the material more suitable for tool manufacture. All chert artifacts, including debitage, were examined for the presence of thermal alteration as an independent measure of raw material diversity at the sites. By determining the percentage of the entire stone tool assemblage that was thermally altered, an attempt was made to establish a series of expectations for different functional classes of sites. Following the manufacture and maintenance aspects of the technology as a basis, the percentage of thermally altered chert in the assemblage may be expected to fall into three groups. Sites at which initial tool manufacture occurred without subsequent maintenance would be expected to have the lowest percentages of thermally altered cherts because most of the debris would have been removed prior to the modification of the blanks by heat. The lower percentages of thermal alteration could also be due to the preference during certain temporal periods for this technology; however, this has not been demonstrated in research conducted on larger samples of material from the Savannah River Plant.

The second group of sistes would consist of those that have very high percentages of altered material. These high occurrences of thermal alteration would represent a pattern of finished tool maintenance, such as reedging, and minimal initial manufacturing. The third group would be intermediate between groups 1 and 2 in terms of the percentage of thermally altered materials. Such sites would be expected to represent long-term occupation localities at which both tool manufacturing and maintenance were practiced.

Four sites had percentages of thermally altered chert less than 30% and were considered to be examples of initial tool manufacture localities. These are 38BR38 (18%), 38BR44 (14%), 38BR112 (17%) and 38BR268 (15%). Of interest is the fact that all of these sites have debitage size curves representing large and small flakes. This evidence supports the initial tool manufacturing inference.

High percentages of thermally altered chert in excess of 70% were recovered from 38BR259 (71%), 38BR264 (75%), 38BR265 (74%) and 38BR271 (75%). In these cases debitage size was not consistently covariant, since only 38BR265 had the small debitage pattern. All other sites were represented by large and small debitage patterns. This variance with the expectation of high thermal alteration and small debitage size may be the result of sampling error or another source of variability as yet unknown.

Sites 38BR45 (60%), 38BR55 (52%), 38BR56 (39%), 38BR102 (40%), 38BR187 (45%), 38BR263 (60%), and 38BR269 (66%), the largest group of sites, contained intermediate thermally altered percentages between 30% and 70%. As with the second group of sites, debitage size varies between the two size categories.

The value of thermal alteration percentages in interpreting site function cannot be decisively drawn from this study. However, when taken in the composite with other assemblage characteristics, it may have some value. The following discussion of total assemblage analysis is intended to demonstrate the importance of all assemblage characteristics in the determination of functional variability.

Ceramic Analysis

As an index of site function, pottery is limited to only a portion of prehistory from the terminal Late Archaic through the Mississippian periods. For sites dating to these periods and containing ceramics, certain important inferences are possible. First, the use of ceramic containers would most certainly be a reliable inference. Second, since ceramic containers are quite fragile and bulky, they would be expected to have been common at sites with extended occupation spans (i.e. habitations and base camps). Third, pottery vessels might indicate the storage of foodstuffs. All of these activities and functions would be expected to have obtained at a site with moderate to high frequencies of sherds. In those cases where only a small sample of sherds were recovered, such inferences would not be possible.

Of the nine sites containing evidence of ceramic period occupations, four (38BR438, 38BR55, 38BR187, and 38BR259) had sherd frequencies in moderate to high levels (i.e. greater than 10 sherds). Sites 38BR45, 38BR102, 38BR263, 38BR265 and 38BR268 contained 3, 8, 1, 1 and 1 sherds, respectively. These small samples suggest either very limited ceramic period occupations or the presence of very few vessels. Without extensive testing no authoritative statement can be made regarding these scant ceramic frequencies.

The importance of the ceramic data will be demonstrated in the next discussion, which will attempt to integrate eight preceding analyses into an overall assemblage evaluation. Although ceramic evidence is restricted to a limited temporal range, the containers have the potential to resolve certain questions of site function when other data sets are inconclusive.

Assemblage Analysis

Eight different data sets have been examined in some detail in order to derive an accurate reconstruction of prehistoric activity at the 15 prehistoric sites in the Steel Creek study. Each data set yielded useful information regarding the variability in function at the sites and offered insight into the range of utility of the artifact classes. As mentioned earlier, single artifact classes can only provide a restricted understanding of activity and function, while the combined data sets enable more complete assessments. It is the purpose of this section to integrate these disparate data and offer general and specific functional interpretations of the 15 sites. These interpretations will form the basis for final assessments of archeological significance to be presented in the recommendation section.

The results of the eight analyses have been combined in Table 12 to enable a combined comparison of each site's values. Basic functional inferences are also noted in the table. The sites were classified as either limited activity or habitation on the basis of the preceding analyses. Limited activity sites are characterized by low overall artifact frequencies, low functional diversity, and low number of formal tools (i.e. unifaces, hafted and other bifaces, and other tools). Habitation sites were those that have high artifact frequencies, high functional diversity, and moderate to high formal tool frequencies.

Limited activity functions were inferred for 10 sites (38BR44, 38BR45, 38BR56, 38BR102, 38BR112, 38BR263, 38BR264, 38BR265, 38BR268, and 38BR271). Within this type there is a considerable range in assemblage characteristics, which may represent different activities. Sites 38BR56, 38BR102, 38BR112, 38BR263, 38BR264, 38BR265, 38BR268, and 38BR271 seem to represent very brief occupations associated with the procurement of resources. Given their location in the mesic terrace zone, they could have been used as initial processing loci for faunal resources. Each of these sites contained debitage with some percentage of thermal alteration. In those cases where utilized flakes were recovered, the edge-angle classes indicate cutting and light scraping functions only. Other and hafted bifaces when present were usually in broken condition. Formal unifacial tools occurred at only two sites. Ceramic sherds were either absent or in frequencies less than 10. The only other tools were the hammerstones/axe at 38BR112 and the hammerstone at 38BR265. Although these samples may be less than completely representative, an overall pattern has been derived that permits the clustering of these sites. Under the conditions of a multiple classification exact similarity among the group members is not a necessary criterion for grouping, rather the groups consist of members which exhibit several of similar conditions. The basic criteria of low diversity, low frequency and few formal tools were used to define this set of limited activity sites. A more refined classification into specific activity sites as subsets of the limited activity group would require additional testing and research that would have been beyond the scope of the present study.

The samples collected from the five sites classified as habitation/ base camps are of sufficient size to permit a more refined discussion of activity. The primary bases for classification of 38BR438, 38BR55, 38BR187, 38BR259 and 38BR269 were the occurrence of high artifact diversity, high artifact frequency and high tool frequency. As expected, no two sites in this group are uniformly similar, but overall the sites meet the general criteria. All material recovered from the five sites suggest extended occupational duration and high activity diversity.

At the one extreme of the group is site 38BR269 that contained utilized flakes from each of the five edge-angle categories, a single hafted biface fragment, a single other biface fragment, large and small debitage, and a high percentage of thermally altered chert represents the intermediate functional type. That is, the evidence does not clearly support the contention that the site served as a habitation or as a limited activity site. Based on the presence of high functional diversity in utilized flake edges, the broken bifaces and the relatively high thermally altered chert percentage, the site would appear to have been used as a multifunctional base camp. Such base camps would have been used for the procurement and processing of floral and faunal resources over a period longer than a single task oriented, limited activity site. When this functional variability

TABLE 12

INTERASSEMBLAGE COMPARISON FOR SITES RECOVERED IN THE STEEL CREEK SURVEY

Site	Environmental Zone	Debitage Category*	Mean Uniface Edge Angle***	Utilized Flake Categories	Other Biface (Whole/Broken)	Hafted Biface (Whole/Broken)	Other Tool Categories**	Pottery Sherds	Thermally Altered Chert (%)	Inferred Functional Site Type
38BR438	II	B	75°	A,B,C, D,E	4/2	0/3	HS	19	18%	Habitation
38BR44	II	B	57°	C,D	-	0/4	-	-	14%	Limited Activity
38BR45	II	A	-	B,C,D	1/4	-	CR	3	60%	Limited Activity
39BR55	II	B	61°	A,B,C, D,E	2/2	1/13	HS, ST, CR, MT	161	52%	Habitation
38BR56	II	A	-	-	0/1	-	-	-	39%	Limited Activity
38BR102	II	A	-	-	1/1	1/0	-	8	40%	Limited Activity
38BR112	II	B	-	-	-	-	AX	-	17%	Limited Activity
38BR187	II	B	70°	B,C, D,E	1/6	0/2	CR	27	45%	Habitation
38BR259	II	B	86°	A,B,C, D,E	0/2	-	MT	26	71%	Habitation
39BR263	II	B	20°	A	-	-	-	1	60%	Limited Activity
38BR264	II	B	-	A	-	-	-	-	75%	Limited Activity
38BR265	II	A	-	-	-	0/1	HS	1	74%	Limited Activity
38BR268	II	B	-	A,C	-	-	-	1	15%	Limited Activity
38BR269	II	B	-	A,B,C, D,E	0/1	0/1	-	-	66%	Habitation
38BR271	II	B	75°	-	-	-	-	-	75%	Limited Activity

* Debitage Size Categories: A = small size only, B = small and large debitage

** Other Tool Categories: HS = hammerstone, CR = flake core, AX = Axe reused as hammerstone, ST = worked steatite, and MT = metate

***Utilized Flake Categories: A = fine cutting, B = general cutting, C = heavy cutting and scraping, D = heavy bone and wood working, and E = exhausted is viewed in terms of a continuum, a site such as 38BR269 would represent a duration of occupational and activity diversity between the episodic task site and the extended habitation site. Base camps of this type are expected to have been quite common in the terrace zone because of the high resource potential within a restricted geographic space.

Continuing along the functional diversity continuum is the largest group of habitation sites consisting of 38BR38, 38BR187 and 38BR259. These sites have assemblages that indicate a long-term occupation and high functional diversity. Each is situated within the terrace zone in close proximity to the Steel Creek floodplain. Utilized flake diversity is quite high with examples of all five edge-angle categories present at all but one site, at which four occur. Unifaces are present at each site with edge angles averaging in excess of 70°, indicative of heavy scraping functions. Although hafted and other biface occurrences vary considerably among the three sites, they are present in modest frequencies. Ceramics are present in moderate quantities suggesting the use of containers during the Woodland occupations. Other tools are present at each site but not common. The metate at site 38BR259 indicates nut and/or seed processing; the cores at sites 38BR438 and 38BR187 indicate primary flake tool production. Debitage size curves at each site are characteristic of tool fabrication and maintenance. The most variability among the sites is in the thermally altered percentages, which range from 18% at 38BR438, to 45% at 38BR187, to 71% at 38BR259. This range of values does not conform to expectations, possibly because of the different temporal affiliations of the sites. Any determination of the specific causes of the variability must await more detailed analyses of more complete samples from the sites. Overall, the artifact assemblages support the postulate that the three sites functioned as a habitation site. Diversity in lithic tool samples from almost all types and moderately high frequencies of all artifacts permits habitation function assignment.

At the top end of the diversity and frequency scale in the habitation site group is 38BR55. An inspection of Table 12 illustrates the broad range of tool classes recovered from this site. Some of this variability is certainly due to the fact that this site was tested far more thoroughly than all others in the study due to its proximity to the Steel Creek floodplain and terrace. However, the presence of all functional tool classes at this site in moderate to high frequencies clearly supports the contention that the site was a multiple activity habitation that spanned the period from the Early Archaic through the Mississippian periods. The assemblage from site 38BR55 represents all major activities expected for the terrace zone. Hammerstones and cores suggest an initial flake and core tool technology. The metate provides direct evidence of nut and/or seed processing, while the steatite fragments indicate either stone bowls or discs were used. Very high frequencies of utilized flakes in all edge-angle categories clearly suggest a diverse set of cutting and scraping activities. Broken and whole bifaces, both hafted and other, are indicative of heavy cutting and butchering. The intermediate thermally altered chert percentage (i.e. 52%) falls within the expected range for sites where both tool manufacture and maintenance took place. Since much of the occupation at this site was during the Woodland Period the high sherd frequency was expected. Nonetheless, this very high sherd count supports the contention that the site was the location of food storage. When viewed in light of this evidence and in comparison with all other sites sampled during this study, 38BR55 must be considered a major habitation locality. Its setting at the confluence of two large streams and within the resource rich terrace zone would have made the site a preferred environment for the procurement of all resources, except riverine species, during all of prehistory as the chronological analyses point out. Although the testing at 38BR55 was intensive by contrast to the work at other sites, it only exposed the relative importance of this site. It has the potential to resolve many important questions concerning the stability or change in prehistoric adaptations in this region of the Southeast and to provide a relatively complete picture of the primitive technologies associated with the various occupations. Moreover, the effects of changing human population density and environment can be examined through the study of the more than 7,000 years of native residents at this location.

In summary, the analysis of the prehistoric assemblages recovered during the survey of the Steel Creek terrace and floodplain has allowed for the determination of broad variability in the functional characteristics of sites. All types of prehistoric activity are represented in the samples from the episodic task oriented, limited activity sites to the long-term, multiple activity oriented habitation sites. Through the consideration of the entire assemblage, it has been possible to reconstruct the diversity of human activity conducted in this watershed as a means of determining prehistoric adaptations. These adaptations seem to have been directly associated with resource diversity and the placement of residential sites in close proximity to the widest range of resource zones. Such information concerning adaptation should provide the basis for more accurate regional interpretations of human lifeways. It has been the goal of these analyses to evaluate the data sets from each site in order to determine the relative significance of the locations for yielding additional important information about the prehistoric occupants. The next section pertaining to recommendations will summarize the evaluations of site significance and present a set of suggested strategies for ensuring the preservation of the important resources.

EVALUATIONS AND RECOMMENDATIONS

Archeological sites are subject to evaluation based on the general criteria presented for the National Register of Historic Places (36CFR60.6) that apply to all historic and archeological properties. The criteria are as follows:

> National Register criteria for evaluation. The quality of significance in American history, architecture, archeology and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and
>
> a) That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> b) That are associated with the lives of persons significant in our pasts; or
>
> c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individuals' distinction; or
>
> d) That have yielded, or may be likely to yield, information important in prehistory or history [38CFR60.6 and 800.10].

Due to the archeological nature of all sites located in the present survey only criterion d) that relates to information content applies to the data at hand. The preceding discussions present the data and analyses for each archeological site within the survey area. Only one site is considered by the authors to be of sufficient content, integrity and scientific importance to warrant eligibility for nomination to the National Register. Prior to a discussion of this site it should be clearly stated that eligibility does not specifically nominate a property to the register, but instead identifies the property as important and worthy of preservation from any adverse effects. The remaining sites in the survey area are considered in two groups: those with potential significance and those without significance. The following section presents the evaluations of these archeological resources in terms of research problem areas important on the regional, state and local levels.

Site Evaluations

Research problems and questions are the basis for the evaluation of all archeological sites since there are few intrinsic properties in any sites that meet the first three criteria for the National Register. Thus, the significance of a specific site or group of sites must be determined in light of research potential. The specific nature of research questions depends on the level of understanding of history and prehistory in the region, state or locale being examined. In the South Carolina-Georgia area and the central Savannah River locale, archeological research has been sparse. The archeological background section of this report outlines the known prehistory and history in the area and illustrates the limits of knowledge. Most research in the area has been restricted to chronological problems with little emphasis on progressional aspects of the human experience over the past 12,000 years. For these reasons a number of problem areas are presented to establish the basis for site evaluations.

Five specific research problem areas are used in evaluating the archeological resources of the survey area.

1) *Occupational history in the central Savannah River area.* This problem area needs much clarification since its chronology is only partially understood. The recovery of stratigraphic evidence in archeological sites is needed to place complete assemblages in a chronological framework, rather than just diagnostic artifact types such as hafted bifaces and ceramics. Prehistory provides the basic information needed to address other aspects of human culture stability and change because of the time scale and characteristics of each culture. Thus, understanding the occupational history of the region is a major research factor upon which site evaluations can be based.

2) *Prehistoric technological development.* Technologies have changed throughout the local prehistory but the reasons for change are poorly understood. Most knowledge of technologies, particularly lithic technology, has not been derived in the vicinity of the study area, but from sites in North Carolina (Coe 1964). Lithic tool technology has changed considerably over the prehistory of the area with sharp distinctions in hafted biface types. If these types are more than stylistic types and are representations of techno-functional types, an effort must be made to clarify this association. Also, variation in complete lithic tool assemblages requires more detailed examination in order to determine the manner in which human groups responded technologically to specific situations. For this problem to be resolved, sites with examples of diverse assemblages must be preserved and studied to provide comparative information.

3) *Origins of ceramic technology.* The central Savannah River Valley has the distinction of being the first dated location in North America to yield primitive pottery from at least 2500 B.C. (Stoltman 1972). The presence of this important technology in the area at such an early date requires analysis to determine the reasons why such a complex ceramic pattern would develop among hunter-gatherers. Ceramic technology is complex because it requires the knowledge of tempering, clay properties, firing and shaping. The fact that Stalling's Island fiber-tempered pottery is a moderately hard and well-made type requires study to determine the origins of the methods used to fabricate this original North American earthenware. To understand the processes of early ceramic development, sites associated with the Late Archaic are very important in this region.

4) *Prehistoric adaptive stability and change.* Studies pertaining to stability and change in adaptive strategies are relatively new in the region (Hanson n.d.). Although abstract, these studies attempt to identify the mechanisms and causes of major subsistence and settlement change and stability. In the region the Late Archaic to Early Woodland transition, which occurred between 1500 and 1000 B.C., is one of the major known shifts

in lifeways (Hanson, in press). An overall change in settlement location and hunter-gatherer procurement is noted to correspond to the removal of human settlements from the Savannah River swamp edge to the tributary terraces. The examination of this transition and others requires the collection of data from well-preserved site contexts that have complete assemblages and bridge the transition.

5) *Early historic period adaptations*. The study of early historic period adaptations in the New World, particularly in the Savannah River Valley, are important for an understanding of the methods used by European colonists in this vastly different environment. Methods used by these populations for subsistence are only partially understood from written records, so archeological data are valuable sources for determining the processes. In the years between the first colonization of the central Savannah River Valley until the time of the War between the States, the adaptations were related to changing agricultural practices and markets for produce. Through the archeological investigation of agricultural and produce-processing facilities, an understanding of the region's economy may be possible.

These research problem domains presented above are not intended to be complete, but they are appropriate to the archeological resources recovered during the Steel Creek survey. Specific evaluations of sites will be made with the problem domains as the central basis for determining significance. Table 13 presents a brief summary of the sites, their significance in terms of eligibility for nomination, the potential for adverse effects, and recommendations. Three groups of sites are represented in the table: 1) those which are not significant, 2) those which have the potential for being significant, and 3) those which are significant.

Sites in the group not considered to be significant are 38BR44, 38BR45, 38BR56, 38BR102, 38BR263, 38BR264, 38BR265, 38BR268, 38BR271, and 38BR291. These sites lack integrity and are limited in archeological content, and would not yield additional data in reference to the five problem domains presented above. However, the data was characteristic of the sites, thus permitting relatively complete reconstructions without the collection of more data. For these reasons, none of these sites are considered significant with respect to the criteria for nomination to the National Register of Historic Places.

Seven sites are included in the group that may be considered to have potential for significance (i.e. 38BR38, 38BR112, 38BR187, 38BR259, 38BR269, 38BR286, and 38BR288). Three of these sites (38BR38, 38BR259, and 38BR187) are prehistoric habitation loci that have yielded information indicating long-term occupations and well-preserved archeological contexts. Each has the potential to yield important information about Archaic and Woodland Period adaptations and the development of ceramic technology in the area. However, these sites occur beyond the area of impact from the increased water levels of the Steel Creek floodplain and will require no additional mitigation measures. They will be completely evaluated in the context of the comprehensive Savannah River Plant archeological management report that will follow the 40% survey of the property. The remaining four sites in the group are historic features. Three are mill dams (38BR112, 38BR269, and 38BR288) that date to the early nineteenth century (Mills

TABLE 13

ARCHEOLOGICAL RESOURCE SUMMARY FOR SITES RECOVERED DURING THE STEEL CREEK SURVEY

SITE	TEMPORAL RANGE	FUNCTIONAL TYPE	ELIGIBLE FOR NOMINATION	POTENTIAL EFFECT	RECOMMENDATIONS
38BR438	MA, LA, W	Habitation	Possible	None	None
38BR44	EA, LA, 1780-1930	Limited Activity	No	--	None
38BR45	Ceramic	Limited Activity	No	--	None
38BR55	EA, MA, LA, EW, MW, LW, M	Habitation	Yes	Possible	Monitor erosion
38BR102	LA, EW, 1780-1900	Limited Activity	No	--	None
38BR112	Lithic, 1780-1940	Limited Activity and Mill dam	Possible	Possible	Preserve vegetation cover and monitor
38BR187	EW, MW, LW	Habitation	Possible	None	None
38BR259	EW	Habitation	Possible	None	None
38BR263	Ceramic	Limited Activity	No	--	None
38BR264	Lithic	Limited Activity	No	--	None
38BR265	LW	Limited Activity	No	--	None
39BR268	EW	Limited	No	--	None
38BR269	Lithic, 1780-1840	Habitation and Mill Dam	Possible	Possible	Preserve vegetation cover and monitor
38BR271	Lithic	Limited Activity	No	--	None
38BR286	1786-1940	Historic road	Possible	Possible	Preserve vegetation cover and monitor
38BR288	1800-1870	Mill dam	Possible	Possible	Preserve vegetation cover and monitor
38BR291	1760-1840	Historic scatter	No	--	None
38BR56	Lithic	Limited Activity	No	--	None

1825) and are relatively intact. Although the actual wooden mill structures have been weathered and destroyed by pre-Savannah River Plant activities, the dams are well preserved. Aerial photographic evidence of the dams presented in the site description section shows the overall size and shape of the dams during a period of high water (Figs. 11, 15, 17, 18). Since all of these features are indicative of the pre-civil war economy in the area and have the potential to yield information regarding produce processing and marketing practices, these sites are considered potentially significant with respect to the National Register criteria. The sites have been subject to the forces of high water levels and erosion during previous activity associated with the L reactor discharge of thermal effluent and are still intact. Therefore, it is not expected that the reactivation of the L reactor will affect the dams. Complete evaluations of these sites will await the completion of the comprehensive report on the archeological resources of the Savannah River Project.

The last site in this group is 38BR286, a historic roadway across much of the Steel Creek floodplain. A wooden bridge spanned the actual waterway during the period of use. However, this portion of the roadway-bridge system lies in ruin, leaving only the earthen approaches. Field and aerial photographic examination of the site indicates that no erosion or disturbance has affected the earthen approaches. Although this site has the potential to yield information concerning early transportation systems in the area and thus the early economy, a complete evaluation is unnecessary at this time, because the site will not be affected by the planned change in water levels. Site 38BR286 will be evaluated as part of the entire early road system on the Savannah River Plant in the comprehensive archeological management plan.

Site 38BR55 is the single site in the study that must be considered significant in terms of the National Register criteria. Its stratigraphic history, integrity, artifact content, and ability to yield important data relevant to prehistoric research domains are the reasons. The relatively uninterrupted prehistoric occupation beginning in the Early Archaic and continuing through the Mississippian make this site a valuable resource for clarifying the occupational history of the region. Artifact assemblage samples collected during survey and testing provide evidence that the site contains very well-preserved assemblages indicative of technological change during all periods of residence. The overall intergrity of the deposits would permit controlled collection of data pertinent to activity structure and residence patterns. The occurrence of a Late Archaic assemblage suggests the presence of a transitional Late Archaic-Early Woodland occupation. An archeological resource with this data potential in the Upper Coastal Plain physiographic province must be considered worthy of preservation. Water scouring due to increased water flow could remove portions of the western edge of the site. Although the aerial photographic study of high water levels in the Steel Creek floodplain and physical inspection of the terrace edge did not reveal any erosion due to previous flooding, the possibility of erosive activity is present.

Consideration of Effects

Adverse effects are any man-caused activity that could result in the partial or complete destruction of archeological resources. In the case of the planned reactivation of the L reactor and concomitant flooding of the Steel Creek floodplain by thermal effluent, the major effect will be the possible erosion of terrace edges. No other effects would directly or indirectly pertain to the archeological resources.

Since exact water levels resulting from water discharge from the L reactor operation were not available at the time this study began, the entire floodplain and terrace edge zones along Steel Creek from the L area to the Steel Creek delta in the Savannah River floodplain swamp were examined. A combination of field survey and aerial photographic survey was employed to determine the presence of archeological resources. Projected water levels were approximated using a set of aerial photographs taken during the 1960s that illustrate very high water levels during a period when L and P reactors were discharging thermal effluent into the Steel Creek system (see Figs. 11, 15, 17, 18). The water levels illustrated in these photographs indicate the estimated maximal flood limits within the floodplain and the potential areas of erosion relative to archeological resources.

The four floodplain sites potentially significant (38BR112, 38BR269, 38BR286, and 38BR288) are all historic earthen features in the floodplain and would be subject to the increased water flow. Figures 11, 15, 17, and 18 illustrate the location of the features (i.e. sites) in the floodplain during maximal water flow periods. Each site was inspected to determine the amount of erosion from previous flooding. But no erosion was noted because the tree and vegetation cover on the features seemed to stabilize the effects of erosion by holding the compacted fill together, preserving the dams and roadway. The vegetation cover on the four features prohibits excessive erosion and should remain intact.

Site 38BR55, the significant prehistoric site at the confluence of Steel Creek and Meyer's Branch, is in close proximity to the floodplain. The aerial photographs of extreme high water levels illustrate the presence of water adjacent to the terrace edge in a context that could destroy the site. The site extends for almost 600 meters along the terrace edge; the potential for erosion is great. Although no direct evidence of adverse erosive activity was noticed during field inspections at the site, it is recommended that the site be inspected monthly to determine the amount of erosion once the L reactor begins operation.

The archeological resources along Steel Creek below the L reactor have the greatest potential for adversity from erosion. Since no direct evidence of prior erosion at the sites was noted during fieldwork, it may not result from the planned discharge associated with the L reactor reactivation. For this reason, a mitigation plan for five sites (38BR55, 38BR112, 38BR269, 38BR286, and 38BR288) is recommended as follows.

Recommended Mitigation Plan for the Archeological Resources along Steel Creek

Preservation is the preferred mitigation for all prehistoric and historic archeological resources because they are nonrenewable. Data recovery through excavation is least favorable, because of the resultant destruction of the site and the relatively high cost of recovery. The plan developed to protect the significant and potentially significant sites in the study area subject to destruction employs three stages: monitoring, protection and data recovery.

Stage 1: Monitoring. This mitigation measure should be the only one required if erosion along the floodplain and terrace edge are no more severe than during previous discharge events in Steel Creek. It is not expected that Steel Creek will be subjected to water levels in excess of those during the 1960s when two reactors discharged thermal effluent into the stream. As an initial protective measure, it is recommended that each of the five sites be monitored on a monthly basis during the first two years of the L reactor's operation to determine whether erosion will occur.

The four floodplain sites (38BR112, 38BR269, 38BR286, and 38BR288) should all be allowed to remain exactly as they existed at present. No vegetation should be removed from the earthen structures so that erosion will be minimal. Monitoring should consist of the placement of control stakes along the upstream edges of the structures and the monthly checking of the structures for erosion. In the event that erosion begins to remove segments of the sites, the active protection of the structures would become necessary requiring the implementation of the second stage. If no erosion is evident at the end of the two year monitoring period then the sites should be considered sufficiently protected to assure preservation.

Site 38BR55, which is situated on the terrace of Steel Creek, should be monitored in a manner similar to that employed at the four floodplain sites. It is recommended that 10 staked lines be placed at 50-meter intervals perpendicular to the terrace edge in order to measure the occurrence of any erosion along the western edge of the site. Further, no vegetation along the terrace edge should be removed so that the terrace edge is not unnecessarily subject to erosion. The root systems of the trees should fortify the terrace edge and aid in protecting the site from adverse erosive activity. Monitoring of the site should be conducted on a monthly basis over the same two year period as the other sites. As with the other sites, active erosion protection will be required in the event that adverse erosion threatens the site's integrity.

Stage 2: Erosion Protection. If any of the sites begin to evidence adverse effects due to erosion, it would become necessary to control the problem through some form of stabilization. The most reliable method would be the installation of erosion resistant barriers along the eroding surface. Such barriers should be suitable to protect the site for the entire duration the reactor will be operated. In the event that erosion resistant barriers become needed, a plan could be developed for their installation by a combined effort between the Department of Energy, the Savannah River Plant Archeological Research Program and Dupont. If required, the barriers are likely to control erosion and therefore protect the sites from any further destructive forces.

Stage 3: Data Recovery. This final stage would be required only in the event that the erosion barriers were not able to control adverse effects on the sites. In the case of the floodplain sites, data recovery would involve the detailed mapping of the structures and partial excavation in the areas where the mill houses were placed. At 38BR55 data recovery would require complete excavation of the area along the terrace edge to obtain the prehistoric information within the site. As mentioned, the probability of data recovery becoming necessary is extremely low given the fact that previous water levels in the floodplain did not affect the site. This stage is mentioned to provide for the protection of the sites in the most extreme case of erosion. If data recovery is needed then a detailed research design must be developed that would focus the excavation toward the research domains mentioned above.

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APPENDIX I

PREHISTORIC ARTIFACT SUMMARY TABLE

Site and Provenience	Lithic Debitage (counts)					Lithic Tools (counts)					
	Cortical Flakes	Thinning Flakes	Flake Fragments	Chunks	Fire-Cracked Rock	Hafted Bifaces	Other Bifaces	Unifaces	Utilized Flakes	Other Tools	Prehistoric Ceramics
38BR438- 1	4	15	175	3		1		2	8	HS	
38BR438- 2	7	14	20	4			6		5		2
38BR438- 3	1	1	5			2			2		17
38BR438- 1	20	95	453	2	1	4		2	14		
38BR438- 2	1	7	47					2	3		
38BR 45- 1		2	8				1		1		2
38BR 45- 2						1	2			CR	
38BR 45- 3	3	9	11						4		1
38BR 55- 1	3	12	35								32
38BR 55- 2	3	20	52			1	4		4	HS,ST,CR	15
38BR 55- 3A	1	2	10		3						2
38BR 55- 4A	2	6	15		1	1			1		3
38BR 55- 5A	1	9	24		1			1	1		3
38BR 55- 6A		2	5								
38BR 55- 7						1			1		
38BR 55- 8A		3	11		1						1
38BR 55- 9A	19	6	56	2					1		
38BR 55-10A		1	4					1	1		
38BR 55-11A		1	1								
38BR 55-12A		1	4						1		1
38BR 55-13A			3								
38BR 55-14A		3	1								1
38BR 55-15A		3	3								
38BR 55-16A		3	6			1					
38BR 55-17A	1	3	2								1

PREHISTORIC ARTIFACT SUMMARY TABLE

Site and Provenience	Lithic Debitage (counts)					Lithic Tools (counts)					
	Cortical Flakes	Thinning Flakes	Flake Fragments	Chunks	Fire-Cracked Rock	Hafted Bifaces	Other Bifaces	Unifaces	Utilized Flakes	Other Tools	Prehistoric Ceramics
38BR 55-18A		2	15	1							2
38BR 55-19A		4	10								
38BR 55-20A			14								
38BR 55-21A		2	9								1
38BR 55-22A		6	8								
38BR 55-23A		3	5						1		1
38BR 55-24A			4					1			
38BR 55-25A			5				1		2		2
38BR 55-26A	1		20	1							
38BR 55-27A	2	8	38	3		1			1		3
38BR 55-28A		8	33	1	1			1	1		7
38BR 55-29A	1	9	19	3	4		1		4		7
38BR 55-30A			18		1	1	1				3
38BR 55-31A		8	9	2	1	1			3	CR	2
38BR 55-32A	1	4	20	1	1				2		1
38BR 55-33A	1	1	6								
38BR 55-34A		2	3								
38BR 55-41A	1		37								
38BR 55-42A	3	25	30	3	2						2
38BR 55-43A		6	15						3		6
38BR 55-44A	2	9	23	3					1		
38BR 55-45A	3	5	18						3		1
38BR 55-46A	4	6	62		3						1
38BR 55-47A	1	4	16						2		
38BR 55-48A	3		22						1		

PREHISTORIC ARTIFACT SUMMARY TABLE

Site and Provenience	Lithic Debitage (counts)					Lithic Tools (counts)					
	Cortical Flakes	Thinning Flakes	Flake Fragments	Chunks	Fire-Cracked Rock	Hafted Bifaces	Other Bifaces	Unifaces	Utilized Flakes	Other Tools	Prehistoric Ceramics
38BR 55-49A	3	10	10						2		
38BR 55-50A	1		11	1							1
38BR 55-51A	1	3	20						1		
38BR 55-52A			18								1
38BR 55-53A			8	2							1
38BR 55-54A	2	1	21						1		1
38BR 55-55A		5	9		1				1		
38BR 55-56A	4	9	16	2	2	1			2		
38BR 55-57A	3	12	14		4			1	1		2
38BR 55-58A	1	3	4								
38BR 55-59A		2	12						1	ST	2
38BR 55-60A		2	4	2	2		1				2
38BR 55-61A			7						1		1
38BR 55-62A	1	10	5		1				2		3
38BR 55-63A		7	6	1	2						
38BR 55-64A		2	2	2							3
38BR 55-65A	1		16		1						
38BR 55-66A	2	1	26		3		1				
38BR 55-67A	2	4	28		1				1		
38BR 55-68A	4	1	26								
38BR 55-69A	3	11	12	4			1	1	1		
38BR 55-70A	3	6			1				2		1
38BR 55-71A	1	2	14			1					2
38BR 55-72A	1		8						1		3
38BR 55-73A		3	5			1					1

PREHISTORIC ARTIFACT SUMMARY TABLE

Site and Provenience	Lithic Debitage (counts)					Lithic Tools (counts)					
	Cortical Flakes	Thinning Flakes	Flake Fragments	Chunks	Fire-Cracked Rock	Hafted Bifaces	Other Bifaces	Unifaces	Utilized Flakes	Other Tools	Prehistoric Ceramics
38BR 55-74A		3	17	3		1					
38BR 55-75A	1	11	12		1				2		
38BR 55-76A	2	5	15		1				2		1
38BR 55-77A	1	3	8	1	1				1		
38BR 55-78A	2	10	27	1	2			1	2		
38BR 55-79A	1	4	7	2	3				2	CR	
38BR 55-80A		4	6	1					3		1
38BR 55-81A	1		38		1						1
38BR 55-82A	1	4	37								1
38BR 55-83A		7	12	1							
38BR 55-84A		3	11	1	1						
38BR 55-85A	3	1	8		3				1		
38BR 55-86A			8								
38BR 55-87A		3	16	1				1	1		2
38BR 55-88A	2		9		1						
38BR 55-89A	1	14	1								
38BR 55-90A	1	4	11	1							1
38BR 55-91A	1	42	1								3
38BR 55-101A	3	19	27	2	5				4		5
38BR 55-102A	5	9	19	1	1				1		4
38BR 55-103A	3	21	18	1							2
38BR 55-104A	5	29	37						2		4
38BR 55-105A		28	46	3				1	1		5
38BR 55-106A		4			2	1					4
38BR 55-107A	1	4			3						2

PREHISTORIC ARTIFACT SUMMARY TABLE

Site and Provenience	Lithic Debitage (counts)					Lithic Tools (counts)					
	Cortical Flakes	Thinning Flakes	Flake Fragments	Chunks	Fire-Cracked Rock	Hafted Bifaces	Other Bifaces	Unifaces	Utilized Flakes	Other Tools	Prehistoric Ceramics
38BR 55-108A			1								1
38BR 55-110A	1	2	8		1						1
38BR 55-111A	4	6	11								
38BR 55-112A	3	1									1
38BR 55-113A		3									
38BR 55-114A	2	4	14								
38BR 55-115A	1	1			1						
38BR 56- 1		3	2								
38BR 56- 2	1	6	17		2		1				
38BR102- 1	1		4								
38BR102- 2	2	1				1					8
38BR102- 3A					2		1				
38BR102- 5	2	1	2								
38BR112- 1	1	9	45	1						AX	
38BR184- 1			1								
38BR185- 1	31	10	74				2		4		
38BR186- 1			8								
38BR187- 1	3	1	37								
38BR187- 2	5	45	46	3	1			1	4		
38BR187- 3											1
38BR187- 4	8	18	22	6	1	1	2	1	10	CR	1
38BR187- 5	13	15	9			1	1		5	CR	25
38BR259- 1	8	17	38	3					8		2
38BR259- 2A			1								
38BR259- 3A		2					1				1

PREHISTORIC ARTIFACT SUMMARY TABLE

Site and Provenience	Lithic Debitage (counts)					Lithic Tools (counts)					
	Cortical Flakes	Thinning Flakes	Flake Fragments	Chunks	Fire-Cracked Rock	Hafted Bifaces	Other Bifaces	Unifaces	Utilized Flakes	Other Tools	Prehistoric Ceramics
38BR259- 4A		1	3								7
38BR259- 5A	1								1		
38BR259- 6A	1	3	2								
38BR259- 7A		1	3	1							
38BR259- 8A	1	17	14						1		2
38BR259- 9A	1	1	5		1						
38BR259-10	6	7	16						1		1
38BR259-11	3	3	6	3							
38BR259-12	3	2	19	1					1		
38BR259-13	4	6	2					1	1		
38BR259-14	1	2	4								
38BR259-15			2								1
38BR259-16	1		15	1							
38BR259-17	13	10	47								
38BR259-18	1		3						1		1
38BR259-19	1	1	16								
38BR259-20			3								1
38BR259-21		2	1								
38BR259-22	3	10	9						1		
38BR259-23A			6								
38BR259-23B		3		1					1		
38BR259-23C			10						1		
38BR259-23D	1		3						1		1
38BR259-23E	1	6	7								
38BR259-23F		2	17	2					1		

PREHISTORIC ARTIFACT SUMMARY TABLE

Site and Provenience	Lithic Debitage (counts)					Lithic Tools (counts)					
	Cortical Flakes	Thinning Flakes	Flake Fragments	Chunks	Fire-Cracked Rock	Hafted Bifaces	Other Bifaces	Unifaces	Utilized Flakes	Other Tools	Prehistoric Ceramics
38BR259-23G	4	6	23						1		
38BR259-23H	5	4	61					1	1		1
38BR259-23I	2	34	30	7							2
38BR259-23J	3	3	39	5							1
38BR259-24A			1								1
38BR259-24B	1	2	14								
38BR259-24C	4	8	8						2		4
38BR259-24D	1	3	12								
38BR259-24E	1	5	26	2	1				1		
38BR259-24F		3	34								
38BR259-26A	1		1								
38BR259-28	1		4								
38BR259-29	6	1	18	2					5		
38BR259-30A		1									
38BR259-32A		1	6								
38BR259-33A		1									
38BR259-34A		1								ME	
38BR259-35	3	10	19	2			1		2		
38BR259-36A		1	1								
38BR259-37	2	8	9	2					4		
38BR263- 1			5	1					1		1
38BR263- 2	3		4		1						
38BR264- 1	2	5	28	5					1		
38BR264- 2		1									
38BR265- 1			1	2	1						

PREHISTORIC ARTIFACT SUMMARY TABLE

Site and Provenience	Lithic Debitage (counts)					Lithic Tools (counts)					
	Cortical Flakes	Thinning Flakes	Flake Fragments	Chunks	Fire-Cracked Rock	Hafted Bifaces	Other Bifaces	Unifaces	Utilized Flakes	Other Tools	Prehistoric Ceramics
38BR265- 3											1
38BR265- 4		3	1			1				HS	
38BR268- 1			2						1		1
38BR268- 3	4		6						1		
38BR269- 1		4	5	4					1		
38BR269- 2A	4	15	87	11				1	5		
38BR269- 3A		6	32	3							
38BR269- 4A		4	4						2		
38BR269- 5A	2	7			2				1		
38BR269- 6A		6									
38BR269- 7A		5	8						1		
38BR269- 8A			5								
38BR269-10A		3	18								
38BR269-11A						1					
38BR269-12	4	6	32	2					3		
38BR269-13A	2	15	13	1							
38BR269-16A		5	5								
38BR269-17A	1										
38BR269-18A			2	1					2		
38BR269-20A		5	14	3							
38BR269-21A		4	4								
38BR269-22							1				
38BR271- 1		2	4	1			1				
38BR271- 2	1			1							

APPENDIX II

DEBITAGE SIZE ANALYSIS*

Flake size (in square millimeters)

Provenience	1 - 100	101 - 225	226 - 400	401 - 625	626 - 900	901 - 1225	1226 - 1600	1601 - 2025	≥ 2026	Angular Chunks
38BR438- 1	1	7	6	4		1				3
38BE438- 2		4	4	6	1	2				4
38BR438- 3				1						
38BR 44 - 1	27	35	32	12	8	1				
38BR 44 - 2		2	3	1	2					
38BR 45 - 1		3	5	3						
38BR 55 - 1	2	5	7	1						
38BR 55 - 2	3	13	4	1	1					1
38BR 55 - 3A	2	1								
38BR 55 - 4A	2	3	2	1						
38BR 55 - 5A	4	6								
38BR 55 - 6A		1	1							
38BR 55 - 8A	2	1								
38BR 55 - 9A	5	1	3							2
38BR 55 -10A	1									
38BR 55 -11A		1								
38BR 55 -12A	1									
38BR 55 -14A	2	1								
38BR 55 -15A	1	1	1							
38BR 55 -16A	2	1								
38BR 55 -17A	1	2	1							
38BR 55 -18A		1	1							
38BR 55 -19A	1	3								
38BR 55 -21A	2									
38BR 55 -22A	6									
38BR 55 -23A	2	1								
38BR 55 -27A	3	6	1							
38BR 55 -28A	2	2	4							
38BR 55 -29A	7	2								
38BR 55 -31A	3	5								
38BR 55 -32A	2	2	1							
38BR 55 -33A	1			1						
38BR 55 -34A	2									
38BR 55 -42A	19	4		4						1
38BR 55 -43A	1	4	1							

* Whole flakes only

DEBITAGE SIZE ANALYSIS*

Flake size (in square millimeters)

Provenience	1 - 100	101 - 225	226 - 400	401 - 625	626 - 900	901 - 1225	1226 - 1600	1601 - 2025	≥ 2026	Angular Chunks
38BR 55 -44A	6	4	1							
38BR 55 -45A	4	1	1							
38BR 55 -46A	2		1	1	1					
38BR 55 -47A	2	1		1		1				
38BR 55 -48A					1					
38BR 55 -49A	6	4	1							
38BR 55 -51A	3									
38BR 55 -53A										2
38BR 55 -54A			1							
38BR 55 -55A	2	3								
38BR 55 -56A	7	5	1							2
38BR 55 -57A	1	10	2	1						
38BR 55 -58A	1	1	2							
38BR 55 -59A			1		1					
38BR 55 -60A	1				1					2
38BR 55 -62A	1	3								
38BR 55 -63A	2	3	2							1
38BR 55 -64A		2								2
38BR 55 -66A	1									
38BR 55 -67A		2	3							1
38BR 55 -68A										1
38BR 55 -69A	6	3		1	1					6
38BR 55 -70A	2		1							
38BR 55 -71A		1			1					
38BR 55 -72A										1
38BR 55 -73A	2	1								
38BR 55 -74A			2							3
38BR 55 -75A	4	4	2	1						
38BR 55 -76A	3	2	1	1						
38BR 55 -77A	1	2	1							1
38BR 55 -78A	9	1	1							1
38BR 55 -79A		4			1					2
38BR 55 -80A	4									1
38BR 55 -82A	1	1	1	1						
38BR 55 -83A	4	2	1							1

* Whole flakes only

DEBITAGE SIZE ANALYSIS*

Flake size (in square millimeters)

Provenience	1 - 100	101 - 225	226 - 400	401 - 625	626 - 900	901 - 1225	1226 - 1600	1601 - 2025	≥ 2026	Angular Chunks
38BR 55 -84A		2		1						1
38BR 55 -85A					1				1	3
38BR 55 -87A		2	1							1
38BR 55 -90A	4		1							
38BR 55 -101A	7	10	3	1						3
38BR 55 -102A	6	5	2							2
38BR 55 -103A		11	8	3	1					1
38BR 55 -104A	15	9	5	4	1					
38BR 55 -105A	17	6	4	1						3
38BR 55 -107A	4	1								
38BR 55 -110A		2								
38BR 55 -111A	2	2	1	1						
38BR 55 -112A	1	1	1							
38BR 55 -114A	4		1	1						
38BR 55 -115A	1	1								
38BR 56 - 1	3									
38BR 56 - 2	1	3	2		1					
38BR102 - 1			1							
38BR102 - 2				1						
38BR102 - 5				1						
38BR112 - 1	5	1	1							1
38BR185 - 1	2	2	5	5		2				
38BR187 - 1			4							
38BR187 - 2	2	18	22	6	1			1		3
38BR187 - 4	1	8	10	3	1					7
38BR187 - 5		6	7	8	5	3				10
38BR259 - 1	1	8	7	6						4
38BR259 - 3A	2									
38BR259 - 4A	1									
38BR259 - 5A				1						
38BR259 - 6A		2	1	1						
38BR259 - 7A	1									1
38BR259 - 8A	11	3	2	1						
38BR259 - 9A	1									
38BR259 - 10	3	2	1	1						2

* Whole flakes only

DEBITAGE SIZE ANALYSIS*

Flake size (in square millimeters)

Provenience	1 - 100	101 - 225	226 - 400	401 - 625	626 - 900	901 - 1225	1226 - 1600	1601 - 2025	≥ 2026	Angular Chunks
38BR259 - 11		1	1	1						3
38BR259 - 12		1	1							3
38BR259 - 13	1	4	2	1						
38BR259 - 14		1								
38BR259 - 16										1
38BR259 - 17			1	2	2	1				
38BR259 - 19			1							
38BR259 - 21		1	1							
38BR259 - 22	2	2	4	1						
38BR259 - 23B	3									
38BR259 - 23E	5	1	1							
38BR259 - 23F	1		1							2
38BR259 - 23G		6		2						
38BR259 - 23H			1	2		1				
38BR259 - 23I	19	9	5	1						7
38BR259 - 23J	2		1							5
38BR259 - 24B	1	1								
38BR259 - 24C	2	6	2							
38BR259 - 24D	2		1							
38BR259 - 24E	1	3	2	1						2
38BR259 - 24F	1	1								
38BR259 - 26A			1							
38BR259 - 28		1								
38BR259 - 29		1								2
38BR259 - 30		1								
38BR259 - 32A			1							
38BR259 - 33A		1								
38BR259 - 34A		1								
38BR259 - 35	3	8	1							2
38BR259 - 36A	1									
38BR259 - 37	2	2	4		1					2
38BR263 - 1										1
38BR263 - 2									1	
38BR264 - 1	1	3	1							5
38BR264 - 2								1		

* Whole flakes only

DEBITAGE SIZE ANALYSIS*

Flake size (in square millimeters)

Provenience	1 - 100	101 - 225	226 - 400	401 - 625	626 - 900	901 - 1225	1226 - 1600	1601 - 2025	≥ 2026	Angular Chunks
38BR265 - 4	2			1						
38BR269 - 1		1			2	1				4
38BR269 - 2A		6	7	3						3
38BR269 - 3A	2	3		1						3
38BR269 - 4A	1	3								
38BR269 - 6A	1	2								
38BR269 - 7A	2	1	1			1				
38BR269 - 10A	2			1						
38BR269 - 12	1	3	2		1					6
38BR269 - 13A	5	4	4	2						1
38BR269 - 16A	1	2	1	1						
38BR269 - 18A										1
38BR269 - 20A	2	2			1					3
38BR269 - 21A	2	1		1						
38BR271 - 1		2								1

* Whole flakes only

APPENDIX III

FLAKE TOOL ATTRIBUTES

Artifact Catalog Number	Tool Type	Raw Material	Percent Cortex	Patinated?	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Number of Edges	FORM: Edge #1	ANGLE: Edge #1	FORM: Edge #2	ANGLE: Edge #2	FORM: Edge #3	ANGLE: Edge #3	Weight (grams)
38BR438- 1- 1	Uniface	CPC	0	No			14	1	EXC	80					8.5
38BR438- 1- 2	Uniface	CPC	0	No	21	11	7	1	EXC	70					1.2
38BR438- 1- 3	Ut. Flk.	CPC	0	No	33	47	6	1	EXC	45					5.8
38BR438- 1- 4	Ut. Flk.	CPC	0	No	28	24	5	1	EXC	75					3.0
38BR438- 1- 5	Ut. Flk.	CPC	15	No	42	27	7	1	EXC	80					6.0
38BR438- 1- 6	Ut. Flk.	CPC	0	No	30	28	10	2	DNT	65	INC	50			6.4
38BR438- 1- 7	Ut. Flk.	CPC	0	No			4	2	EXC	55	EXC	45			2.0
38BR438- 1- 8	Ut. Flk.	CPC	0	No			6	1	EXC	60					2.3
38BR438- 1- 9	Ut. Flk.	CPC	0	No			3	1	INC	45					.5
38BR438- 1-10	Ut. Flk.	CPC	0	No			4	1	INC	55					1.2
38BR438- 2- 7	Ut. Flk.	CPC	0	Yes	35	16	4	2	STR	30	INC	35			2.0
38BR438- 2- 8	Ut. Flk.	CPC	0	No	30	21	2	1	STR	15					1.4
38BR438- 2- 9	Ut. Flk.	CPC	0	No	38	24	5	1	STR	80					4.0
38BR438- 2-10	Ut. Flk.	TAC	0	No	45	30	10	1	EXC	35					10.4
38BR438- 2-11	Ut. Flk.	CPC	0	No	61	42	14	2	EXC	35	INC	25			23.2
38BR438- 3- 4	Ut. Flk.	TAC	0	Yes		22	9	2	STR	75	STR	80			4.8
38BR438- 3- 5	Ut. Flk.	TAC	0	Yes		26	9	1	EXC	65					5.5
38BR444- 1- 1	Uniface	CPC	0	No			10	2	EXC	40	EXC	55			3.9
38BR444- 1- 2	Uniface	TAC	0	No	29	23	5	1	STR	65					2.8
38BR444- 1- 3	Uniface	CPC	5	No	24	30	7	1	STR	60					4.8
38BR 44- 1- 4	Ut. Flk.	CPC	0	No			5	2	EXC	55	EXC	40			2.7
38BR 44- 1- 5	Ut. Flk.	TAC	0	No	22	17	4	1	EXC	55					1.0
38BR 44- 1- 6	Ut. Flk.	CPC	0	No			4	1	EXC	55					1.9
38BR 44- 1- 7	Ut. Flk.	CPC	0	No			6	2	EXC	60	EXC	65			3.5
38BR 44- 1- 8	Ut. Flk.	CPC	15	No			7	1	INC	60					3.1

FLAKE TOOL ATTRIBUTES

Artifact Catalog Number	Tool Type	Raw Material	Percent Cortex	Patinated?	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Number of Edges	FORM: Edge #1	ANGLE: Edge #1	FORM: Edge #2	ANGLE: Edge #2	FORM: Edge #3	ANGLE: Edge #3	Weight (grams)
38BR 44- 1- 9	Ut. Flk.	CPC	0	No			7	1	INC	60					3.0
38BR 44- 1-10	Ut. Flk.	CPC	0	No			11	1	EXC	55					2.2
38BR 44- 1-11	Ut. Flk.	TAC	15	No	20	24	4	1	INC	60					1.9
38BR 44- 1-12	Ut. Flk.	CPC	0	No			3	1	EXC	50					.9
38BR 44- 1-13	Ut. Flk.	CPC	0	No	36	25	6	2	EXC	70	EXC	60			5.1
38BR 44- 1-14	Ut. Flk.	CPC	5	No			2	1	EXC	70					1.0
38BR 44- 1-15	Ut. Flk.	CPC	15	No	57	44	14	2	EXC	50	INC	65			26.2
38BR 44- 1-16	Ut. Flk.	CPC	0	No			3	1	STR	60					.6
38BR 44- 2- 1	Uniface	TAC	0	No			9	1	EXC	60					2.7
38BR 44- 2- 2	Uniface	CPC	1	No			8	1	EXC	60					7.3
38BR 44- 2- 3	Ut. Flk.	CPC	0	No			6	1	INC	45					3.8
38BR 44- 2- 4	Ut. Flk.	CPC	0	No			3	1	EXC	40					.3
38BR 44- 2- 5	Ut. Flk.	CPC	2	No			5	1	INC	50					2.1
38BR 45- 1- 1	Ut. Flk.	TAC	0	No			3	1	EXC	40					.5
38BR 45- 3- 4	Ut. Flk.	TAC	0	No	22	22	4	1	STR	30					2.3
38BR 45- 3- 5	Ut. Flk.	TAC	0	No	25	24	7	1	INC	55					3.6
38BR 45- 3- 6	Ut. Flk.	CPC	0	No	30	30	7	1	EXC	65					5.9
38BR 45- 3- 7	Ut. Flk.	CPC	0	Yes	34	24	9	1	INC	35					6.2
38BR 55- 2- 9	Ut. Flk.	CPC	0	No		35	7	1	EXC	60					11.3
38BR 55- 2-10	Ut. Flk.	CPC	0	No	23		4	1	INC	50					2.9
38BR 55- 2-11	Ut. Flk.	CPC	0	No	23	31	5	1	INC	65					3.0
38BR 55- 2-12	Ut. Flk.	CPC	0	No			3	1	EXC	50					.5
38BR 55-4A- 6	Ut. Flk.	CPC	0	No	27	27	5	1	EXC	55					2.8
38BR 55-5A- 7	Uniface	CPC	0	No	32	35	9	1	EXC	70					8.3
38BR 55-5A- 8	Ut. Flk.	CPC	0	No	32	17	4	1	INC	45					2.1

FLAKE TOOL ATTRIBUTES

Artifact Catalog Number	Tool Type	Raw Material	Percent Cortex	Patinated?	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Number of Edges	FORM: Edge #1	ANGLE: Edge #1	FORM: Edge #2	ANGLE: Edge #2	FORM: Edge #3	ANGLE: Edge #3	Weight (grams)
38BR 55- 7- 2	Ut. Flk.	CPC	0	Yes	37	17	2	2	INC	35	STR	25			17.7
38BR 55-9A- 6	Ut. Flk.	CPC	10	Yes	30	21	5	3	INC	10	INC	15	INC	10	3.0
38BR 55-10A-3	Uniface	TAC	0	No	38	28	7	1	EXC	75					5.9
38BR 55-10A-4	Ut. Flk.	CPC	0	No	21	12	3	1	EXC	70					.7
38BR 55-12A-3	Ut. Flk.	TAC	0	No		22	6	1	STR	77					2.2
38BR 55-23A-3	Ut. Flk.	TAC	0	No		17	4	1	STR	25					1.1
38BR 55-25B-2	Ut. Flk.	CPC	0	No	35		7	1	EXC	35					4.2
38BR 55-25B-3	Ut. Flk.	TAC	0	No	34		6	1	INC	30					4.4
38BR 55-27A-5	Ut. Flk.	TAC	0	No		20	6	1	STR	45					2.4
38BR 55-28A-3	Uniface	TAC	10	Yes	38	26	9	1	EXC	80					7.9
38BR 55-29A-5	Ut. Flk.	TAC	0	No	22	24	4	2	EXC	45	INC	55			1.8
38BR 55-29A-6	Ut. Flk.	TAC	0	No	21	12	4	1	STR	37					1.0
38BR 55-29A-7	Ut. Flk.	TAC	0	No		20	4	1	INC	47					1.4
38BR 55-29A-8	Ut. Flk.	TAC	0	No	24	23	7	1	INC	45					2.5
38BR 55-31A-4	Ut. Flk.	CPC	0	Yes			2	1	STR	57					.3
38BR 55-31A-5	Ut. Flk.	TAC	50	No	21	25	6	1	INC	55					2.7
38BR 55-31A-6	Ut. Flk.	TAC	0	No	21	29	6	1	STR	20					2.8
38BR 55-31A-7	Ut. Flk.	CPC	0	Yes	35	26	7	2	INC	65	EXC	35			4.5
38BR 55-32A-4	Ut. Flk.	TAC	0	No		22	3	1	STR	30					1.4
38BR 55-32A-5	Ut. Flk.	TAC	0	No	23	17	4	1	STR	50					1.6
38BR 55-43A-3	Ut. Flk.	TAC	0	Yes		26	7	2	EXC	15					3.8
38BR 55-43A-4	Ut. Flk.	TAC	0	No	28	21	5	1	STR	25					2.6
38BR 55-43A-5	Ut. Flk.	TAC	0	No	20	24	3	1	STR	15					1.0
38BR 55-44A-5	Ut. Flk.	TAC	0	Yes	45	33	9	3	STR	25	EXC	45	EXC	35	9.6
38BR 55-45A-4	Ut. Flk.	CPC	0	NO	44	41	11	2	STR	35	EXC	30			15.2

FLAKE TOOL ATTRIBUTES

Artifact Catalog Number	Tool Type	Raw Material	Percent Cortex	Patinated?	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Number of Edges	FORM: Edge #1	ANGLE: Edge #1	FORM: Edge #2	ANGLE: Edge #2	FORM: Edge #3	ANGLE: Edge #3	Weight (grams)
38BR 55-45A- 5	Ut. Flk.	CPC	0	No	30	19	6	1	STR						3.5
38BR 55-45A- 6	Ut. Flk.	CPC	0	No		21	4	1	STR	50					1.1
38BR 55-47A- 4	Uniface	TAC	0	No	40	24	8	1	STR	70					5.1
38BR 55-47A- 5	Uniface	TAC	0	No	28	25	4	1	STR	50					2.2
38BR 55-48A- 4	Ut. Flk.	CPC	0	No	50	41	6	1	INC	10					8.1
38BR 55-49A- 5	Uniface	CPC	0	No	17	18	6	1	STR	45					1.0
38BR 55-49A- 6	Uniface	CPC	0	No		21	4	1	STR	45					1.8
38BR 55-50A- 3	Ut. Flk.	CPC	0	No	51	38	13	2	INC	15	EXC	35			32.8
38BR 55-51A- 4	Ut. Flk.	CPC	10	No	27	22	7	1	EXC	65					2.9
38BR 55-54A- 4	Ut. Flk.	TAC	0	Yes		17	4	1	INC	15					1.9
38BR 55-55A- 3	Ut. Flk.	TAC	10	No	30	11	5	1	INC	30					1.1
38BR 55-56A- 5	Ut. Flk.	CPC	80	No		30	11	1	STR	47					9.8
38BR 55-56A- 6	Ut. Flk.	TAC	10	No		31	7	1	STR	40					4.0
38BR 55-57A- 5	Uniface	CPC	10	Yes			5	1	EXC	75					.6
38BR 55-57A- 6	Ut. Flk.	CPC	10	No	33	17	4	1	STR	35					1.9
38BR 55-59A- 3	Ut. Flk.	CPC	40	No	26	21	11	1	STR	60					3.6
38BR 55-61A- 2	Ut. Flk.	TAC	0	No	33	33	9	1	STR	30					7.4
38BR 55-62A- 4	Ut. Flk.	CPC	20	No		22	5	1	EXC	15					1.8
38BR 55-62A- 5	Ut. Flk.	CPC	0	No	35	22	12	2	INC	60	INC	60			5.7
38BR 55-67A- 4	Ut. Flk.	TAC	0	No	20	19		2	EXC	15	EXC	20			1.2
38BR 55-69A- 6	Uniface	CPC	75	Yes	45	35	24	1	EXC	45					26.7
38BR 55-69A- 7	Uniface	CPC	0	No			4	1	EXC	47					1.0
38BR 55-70A- 3	Ut. Flk.	CPC	0	Yes	24	22	5	1	STR	75					1.7
38BR 55-70A- 4	Ut. Flk.	TAC	0	No	25	15	2	3	EXC	35	EXC	35	INC	35	.9
38BR 55-72A- 3	Ut. Flk.	TAC	0	No		24	9	2	INC	45	INC	45			10.2

FLAKE TOOL ATTRIBUTES

Artifact Catalog Number	Tool Type	Raw Material	Percent Cortex	Patinated?	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Number of Edges	FORM: Edge #1	ANGLE: Edge #1	FORM: Edge #2	ANGLE: Edge #2	FORM: Edge #3	ANGLE: Edge #3	Weight (grams)
38BR 55-75A- 4	Ut. Flk.	TAC	0	Yes			4	1	STR	30					.3
38BR 55-75A- 5	Ut. Flk.	TAC	0	No		12	2	1	STR	75					.3
38BR 55-76A- 4	Ut. Flk.	CPC	0	No		29	7	2	STR	55	STR	60			3.9
38BR 55-76A- 5	Ut. Flk.	CPC	0	No	52	21	4	1	EXC	30					3.0
38BR 55-77A- 5	Ut. Flk.	TAC	0	No	21	27	6	1	EXC	35					3.9
38BR 55-78A- 5	Uniface	TAC	0	No	35	25	9	1	STR	75					7.2
38BR 55-78A- 6	Ut. Flk.	TAC	0	Yes	29	15		1	EXC	35					.7
38BR 55-78A- 7	Ut. Flk.	TAC	0	No		12	2	2	STR	65	EXC	35			1.3
38BR 55-79A- 7	Ut. Flk.	CPC	0	Yes	39	37	5	2	EXC	30	INC	47			5.1
38BR 55-79A- 8	Ut. Flk.	CPC	0	Yes	15	12	5	2	INC	55	INC	55			.6
38BR 55-80A- 4	Ut. Flk.	CPC	75	No	28	31	6	2	INC	70	STR	55			3.2
38BR 55-80A- 5	Ut. Flk.	TAC	15	No	28	20	8	1	STR	55					3.0
38BR 55-80A- 6	Ut. Flk.	TAC	0	Yes			4	1	EXC	65					.6
38BR 55-85A- 5	Ut. Flk.	CPC	0	No		11	3	1	25						.3
38BR 55-87A- 4	Ut. Flk.	CPC	0	No		32	6	2	EXC	25	EXC	25			3.8
38BR 55-87A- 5	Uniface	CPC	0	No	50	21	11	1	EXC	35					10.0
38BR 55-91A- 3	Ut. Flk.	TAC	0	No	21	25	3	2	INC	35	INC	20			1.6
38BR 55-101A-6	Ut. Flk.	TAC	0	No	19	19	5	1	STR	46					1.4
38BR 55-101A-7	Ut. Flk.	TAC	0	No.	29	17	5	1	EXC	65					2.2
38BR 55-101A-8	Ut. Flk.	TAC	0	No	15	15	3	1	EXC	60					.5
38BR 55-101A-9	Ut. Flk.	TAC	0	No	19	15	4	1	EXC	35					.7
38BR 55-102A-5	Ut. Flk.	CPC	0	No	22	18	3	1	INC	45					1.4
38BR 55-104A-4	Ut. Flk.	CPC	0	No	41	20	6	1	STR	20					4.4
38BR 55-104A-5	Ut. Flk.	CPC	0	No	26	14	4	1	STR	15					1.4
38BR 55-105A-4	Uniface	TAC	20	Yes	61	36	18	1	INC	75					38.3

FLAKE TOOL ATTRIBUTES

Artifact Catalog Number	Tool Type	Raw Material	Percent Cortex	Patinated?	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Number of Edges	FORM: Edge #1	ANGLE: Edge #1	FORM: Edge #2	ANGLE: Edge #2	FORM: Edge #3	ANGLE: Edge #3	Weight (grams)
38BR 55-105A- 5	Ut. Flk.	TAC	0	No	36	21	5	2	STR	47	EXC	90			3.3
38BR185- 1 - 1	Ut. Flk.	CPC	5	No			11	1	EXC	60					13.0
38BR185- 1 - 2	Ut. Flk.	CPC	0	No			2	1	STR	40					.3
38BR185- 1 - 3	Ut. Flk.	CPC	0	No			2	2	EXC	55	EXC	60			2.3
38BR185- 1 - 4	Ut. Flk.	CPC	0	No	36	37	28	1	INC	45					21.6
38BR187- 2 - 5	Uniface	TAC	10	No	23	21	7	1	EXC	65					2.3
38BR187- 2 - 6	Ut. Flk.	TAC	0	No	23	22	3	1	INC	45					1.2
38BR187- 2 - 7	Ut. Flk.	TAC	0	No	24	31	5	1	STR	65					2.9
38BR187- 2 - 8	Ut. Flk.	TAC	0	No	18	12	2	1	STR	40					.4
38BR187- 2 - 9	Ut. Flk.	TAC	5	No	38		5	1	EXC	45					3.9
38BR187- 4 - 7	Ut. Flk.	CPC	0	Yes	21	24	8	1	EXC	70					4.0
38BR187- 4 - 8	Ut. Flk.	TAC	0	No	43	23	4	1	45						2.6
38BR187- 4 - 9	Uniface	TAC	0	Yes				1	STR	75					3.2
38BR187- 4 -10	Ut. Flk.	TAC	0	Yes		22	6	2	EXC	62	INC	65			3.5
38BR187- 4 -11	Ut. Flk.	TAC	0	Yes			4	1	INC	90					1.6
38BR187- 4 -12	Ut. Flk.	TAC	0	Yes	22	12	4	1	STR	65					2.1
38BR187- 4 -13	Ut. Flk.	TAC	0	No		16	4	1	STR	40					1.4
38BR187- 4 -14	Ut. Flk.	TAC	0	Yes	22	26	3	1	INC	75					1.7
38BR187- 4 -15	Ut. Flk.	TAC	0	Yes			4	1	INC	50					1.2
38BR187- 4 -16	Ut. Flk.	CPC	0	Yes			6	1	EXC	45					1.5
38BR187- 4 -17	Ut. Flk.	TAC	0	Yes	24		3	1	INC	40					2.0
38BR187- 5 - 7	Ut. Flk.	TAC	50	Yes	38		13	1	STR	90					9.4
38BR187- 5 - 8	Ut. Flk.	CPC	5	Yes	56	43	8	2	STR	55	STR	55			17.4
38BR187- 5 - 9	Ut. Flk.	TAC	0	No	26	15	13	2	INC	90	INC	35			.9
38BR187- 5 -10	Ut. Flk.	TAC	0	Yes	44	16	5	2	EXC	55	INC	80			2.1

FLAKE TOOL ATTRIBUTES

Artifact Catalog Number	Tool Type	Raw Material	Percent Cortex	Patinated?	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Number of Edges	FORM: Edge #1	ANGLE: Edge #1	FORM: Edge #2	ANGLE: Edge #2	FORM: Edge #3	ANGLE: Edge #3	Weight (grams)
38BR187- 5 -11	Ut. Flk.	TAC	0	Yes		12	4	1	DNT	65					.7
38BR259- 1 - 7	Ut. Flk.	CPC	0	No			2	1	INC	50					.2
38BR259- 1 - 8	Ut. Flk.	TAC	0	No	20	18	5	1	35						1.6
38BR259- 1 - 9	Ut. Flk.	TAC	0	No	31	35	3	1	EXC	20					2.3
38BR259- 1 -10	Ut. Flk.	CPC	0	No	40	21	6	1	STR	90					3.7
38BR259- 1 -11	Ut. Flk.	TAC	40	No		22	7	1	STR	40					2.5
38BR259- 1 -12	Ut. Flk.	TAC	33	No	21	19	8	1	STR	35					1.5
38BR259- 1 -13	Ut. Flk.	CPC	0	No		25	5	1	STR	45					4.9
38BR259- 1 -14	Ut. Flk.	CPC	0	No	26	21	8	1	INC	65					2.6
38BR259- 5A- 2	Ut. Flk.	TAC	0	Yes		41	8	1	EXC	45					10.4
38BR259- 7A- 4	Ut. Flk.	TAC	0	Yes		29	7	1	EXC	70					3.9
38BR259- 8A- 4	Ut. Flk.	TAC	0	Yes		38	9	1	DNT	35					7.1
38BR259- 10 - 6	Ut. Flk.	CPC	0	No			3	1	STR	90					.8
38BR259- 12 - 5	Ut. Flk.	TAC	0	Yes		19	6	1	INC	45					1.3
38BR259- 13 - 4	Uniface	TAC	0	No	37	17	8	2	DNT	82	DNT	87			3.6
38BR259- 13 - 5	Ut. Flk.	TAC	0	Yes	21	14	5	1	EXC	30					1.1
38BR259- 18 - 3	Ut. Flk.	TAC	15	No	30	14	12	1	INC	50					4.8
38BR259- 22 - 2	Ut. Flk.	TAC	0	No	25	13	6	1	EXC	30					1.6
38BR259- 23B- 2	Ut. Flk.	TAC	0	Yes	32	29	8	1	INC	42					6.3
38BR259- 23C- 2	Ut. Flk.	TAC	0	No	29	20	9	2	EXC	20	INC	85			3.3
38BR259- 23D- 3	Ut. Flk.	TAC	0	No		21	4	1	EXC	15					1.2
38BR259- 23F- 3	Ut. Flk.	TAC	0	No	25	20	7	1	EXC	45					2.8
38BR259- 23G- 5	Ut. Flk.	TAC	20	No	22	17	6	1	EXC	5					2.2
38BR259- 23H- 6	Uni/UF	CPC	0	No		21	9	3	STR	90	STR	85	STR	45	7.4
38BR259- 23H- 7	Ut. Flk.	TAC	0	No	29	29	6	1	EXC	15					4.8

FLAKE TOOL ATTRIBUTES

Artifact Catalog Number	Tool Type	Raw Material	Percent Cortex	Patinated?	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Number of Edges	FORM: Edge #1	ANGLE: Edge #1	FORM: Edge #2	ANGLE: Edge #2	FORM: Edge #3	ANGLE: Edge #3	Weight (grams)
38BR259- 24C- 5	Ut. Flk.	TAC	0	No		18	3	1	STR	25					.6
38BR259- 24C- 9	Ut. Flk.	CPC	0	No	12	23	4	1	EXC	55					.8
38BR259- 24E- 3	Ut. Flk.	TAC	0	Yes	29	27	6	2	INC	25	EXC	15			3.2
38BR259- 29 - 5	Ut. Flk.	TAC	0	No	35	26	13	1	STR	35					10.6
38BR259- 29 - 6	Ut. Flk.	TAC	0	No		21	4	1	EXC	10					1.5
38BR259- 29 - 7	Ut. Flk.	CPC	0	No	31	17	5	1	INC	15					1.6
38BR259- 29 - 8	Ut. Flk.	TAC	0	No		17	16	2	INC	25	EXC	25			2.6
38BR259- 29 - 9	Ut. Flk.	TAC	0	No	25	13	6	1	INC	16					1.9
38BR259- 35 - 6	Ut. Flk.	TAC	0	Yes	22		6	2	STR	67	INC	60			2.6
38BR259- 35 - 7	Ut. Flk.	TAC	0	No	32	17	3	1	STR	45					1.7
38BR259- 37 - 6	Ut. Flk.	TAC	0	No		25	4	1	EXC	35					1.5
38BR259- 37 - 7	Ut. Flk.	TAC	0	No			4	1	EXC	45					.9
38BR259- 37 - 8	Ut. Flk.	TAC	0	No	25	15	4	1	EXC	35					1.5
38BR259- 37 - 9	Ut. Flk.	CPC	0	Yes	12	26	4	1	STR	60					1.0
38BR263- 1 - 3	Ut. Flk.	TAC	0	Yes	30	24	10	1	EXC	15					4.2
38BR263- 1 - 4	Uniface	TAC	0	No		29	12	1	STR	20					12.1
38BR264- 1 - 5	Ut. Flk.	TAC	0	No	22	19	4	1	STR	15					2.2
38BR268- 1 - 3	Ut. Flk.	CPC	25	No	80	47	20	2	STR	45	STR	30			70.7
38BR268- 3 - 3	Ut. Flk.	TAC	0	No	31	30	7	1	EXC	10					5.0
38BR269- 1 - 4	Ut. Flk.	TAC	0	No		18	6	1	STR	35					3.2
38BR269- 2A- 5	Uniface	TAC	0	Yes		48	22	1	EXC	85					24.1
38BR269- 2A- 6	Ut. Flk.	TAC	25	No	25	21	11	1	STR	45					4.5
38BR269- 2A- 7	Ut. Flk.	CPC	0	No		14	35	1	STR	35					1.2
38BR269- 2A- 8	Ut. Flk.	CPC	0	No	21	10	2	1	STR	25					.2
38BR269- 2A- 9	Ut. Flk.	CPC	0	No	34	19	6	1	STR	45					1.8

FLAKE TOOL ATTRIBUTES

Artifact Catalog Number	Tool Type	Raw Material	Percent Cortex	Patinated?	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Number of Edges	FORM: Edge #1	ANGLE: Edge #1	FORM: Edge #2	ANGLE: Edge #2	FORM: Edge #3	ANGLE: Edge #3	WEIGHT (grams)
38BR269- 2A-10	Ut. Flk.	TAC	0	No	21	24	6	1	STR	45					1.8
38BR269- 4A- 3	Ut. Flk.	TAC	0	No	42	10	7	1	STR	15					3.0
38BR269- 4A- 4	Ut. Flk.	TAC	0	No		16	4	1	EXC	35					1.6
38BR269- 5A- 3	Ut. Flk.	TAC	0	No		17	4	1	STR	45					2.0
38BR269- 7A- 3	Ut. Flk.	TAC	0	No	29	22	6	1	EXC	45					3.1
38BR269- 12 - 6	Ut. Flk.	CPC	0	No		15	4	1	EXC	60					1.1
38BR269- 12 - 7	Ut. Flk.	CPC	0	No		22	5	1	STR	40					1.8
38BR269- 12 - 8	Ut. Flk.	CPC	0	No			3	1	EXC	75					1.1
38BR269- 18A- 3	Ut. Flk.	CPC	0	No	16	11	4	1	INC	20					.8
38BR269- 18A- 4	Ut. Flk.	CPC	10	No	23	28	6	1	INC	45					3.6
38BR271- 1 - 4	Uniface	TAC	0	No	31	22	11	2	STR	85	STR	65			5.7

APPENDIX IV

OTHER BIFACE ATTRIBUTES

Artifact Catalog Number	Biface Type	Raw Material	Patinated?	Percent Cortex	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Lateral Edge Angle	Weight (grams)	Broken?
38BR438-2-12	Cor	CPC	Yes	35	70	45	34	75	77.8	No
38BR438-2-13	Unk	CPC	No	0	31	16	10	60	5.1	No
38BR438-2-14	Unk	TAC	No	0	29	20	13	75	5.1	No
38BR438-2-15	Unk	TAC	No	0	--	50	14	55	15.4	Yes
38BR438-2-16	Unk	TAC	No	0	44	24	11	45	9.0	No
38BR438-2-17	Unk	TAC	Yes	0	--	50	13	35	20.8	Yes
38BR 45-1- 1	Unk	CPC	Yes	0	--	--	9	70	7.3	Yes
38BR 45-2- 1	Cor	TAC	No	0	71	56	34	75	124.4	No
38BR 45-2- 2	Unk	TAC	No	0	--	22	11	50	5.0	Yes
38BR 45-2- 3	Unk	TAC	No	0	--	--	6	45	6.7	Yes
38BR 45-2- 4	Ovd	CPC	Yes	0	--	41	10	65	7.7	Yes
38BR 55-25B-4	Unk	CPC	No	0	48	39	14	60	17.5	No
38BR 55-29A-9	Unk	TAC	No	0	--	--	4	40	1.4	Yes
38BR 55-60A-4	Unk	TAC	No	0	--	36	9	35	7.4	Yes
38BR 55-69A-9	Unk	TAC	No	15	40	36	16	50	18.3	No
38BR 56-2- 3	Ovd	TAC	Yes	0	--	--	7	45	1.7	Yes
38BR102-2- 4	Cor	CPC	Yes	0	80	80	51	90	264.5	No
38BR102-3A-1	Unk	TAC	No	0	--	--	6	75	1.2	Yes
38BR185-1- 6	Unk	CPC	No	0	--	--	18	55	16.3	Yes
38BR185-1- 7	Unk	CPC	No	0	--	--	12	45	15.6	Yes
38BR187-4-19	Unk	TAC	No	0	--	27	12	60	9.8	Yes
38BR187-4-20	Tri	TAC	No	0	--	38	9	57	20.4	Yes
38BR187-4-21	Cor	TAC	Yes	0	42	38	27	87	51.4	No
38BR187-5-13	Ovd	CPC	Yes	5	--	--	--	87	46.1	Yes
38BR187-5-14	Cor	CPC	Yes	10	--	--	--	--	226.3	Yes
38BR259-3A-3	Prf	TAC	No	0	--	33	9	20	9.1	Yes
38BR259-35-8	Prf	TAC	Yes	0	--	--	11	75	13.8	Yes
38BR269-22-1	Prf	TAC	No	0	--	39	10	55	23.6	Yes

APPENDIX V

HAFTED BIFACE ATTRIBUTE SUMMARY

Artifact Catalog Number	Biface Type	Condition	Raw Material	Patinated?	Maximum Length (mm)	Blade Length (mm)	Maximum Width (mm)	Width at ½ Blade Length (mm)	Shoulder Width (mm)	Basal Width (mm)	Maximum Thickness (mm)	Weight (grams)	Resharpened?	Basal Grinding?	Basal Type	Basal Shape
38BR438- 1 - 1	Mo. Mt.	B	QTZ	N			21		21	11	8	4.8	N	N	STM	EXC
38BR438- 3 - 6	Otarre	B	TAC	N			32		32	18	7	8.5	N	Y	CN	EXC
38BR438- 3 - 7	Yadkin	B	TAC	N			15	9	15	15	4	1.2	N	N	TRI	INC
38BR 44- 1 - 1	Kirk	T	TAC	N							7	2.1	N			
38BR 44- 1 - 2	S.R.Stem.	T	CPC	N							6	2.4	N	N		
38BR 44- 1 - 3	S.R.Stem.	T	CPC	N							6	3.4	N	N		
38BR 44- 1 - 4	Palmer	W	CPC	N							7	2.7	Y	Y	SN	INC
38BR 55- 2 - 7	S.R.Stem.	B	CPC	N						16	7	1.6		N	STM	INC
38BR 55- 4A- 7	S.R.Stem.	B	CPC	N						24	13	7.1		N	STM	INC
38BR 55- 7 - 1	Kirk	T	TAC	N							10	13.4	Y			
38BR 55-16A- 3	Yadkin	B	CPC	N		15	6		15	15	6	2.8	Y	Y	TRI	STR
38BR 55-24A- 2	Unknown	M	TAC	N							6	1.5	Y			
38BR 55-27A- 6	Unknown	T	TAC	N							8	5.6	Y			
38BR 55-30A- 2	Yadkin	W	TAC	N	31	25	19	17	20	20	4	2.2	Y	Y	TRI	INC
38BR 55-31A- 8	Unknown	T	TAC	N							6	.9	Y			
38BR 55-56A- 7	Unknown	T	TAC	N		32	32				8	9.7	N			
38BR 55-66A- 4	Unknown	T	CPC	N							6	2.4	Y			
38BR 55-71A- 4	Unknown	B	TAC	Y			26		26	17	10	5.7	Y	N	CN	INC
38BR 55-74A- 4	Kirk	B	TAC	N			22		22	18	8	5.7	N	N	SN	STR
38BR 55-106A-4	Yadkin	B	TAC	Y			20		20	20	6	2.2	N	N	TRi	EXC
38BR102- 2 -3	S.R.Stem.	W	TAC	Y	70	59	29	24	29	19	13	21.8	Y	N	STM	INC
38BR187- 4-18	Unknown	M	TAC	Y							8	4.8	N			
38BR187- 5-12	Yadkin	B	CPC	N			16	10	16	16	4	1.1	N	N	TRI	INC
38BR265- 4- 1	Unknown	T	TAC	N								.2	N			
38BR269-11A- 1	Unknown	B	TAC	N							9	.7		N	STM	INC

PREHISTORIC CERAMIC SUMMARY

Provenience	Plain	Punctate	Linear Punctate	Parallel Simple Stamped	Crossed Simple Stamped	Linear Check Stamped	Simple Stamped/ Linear Check Stamped	Bold Check Stamped	Fine Check Stamped	Bold Cordmarked	Fine Cordmarked	Fine Cross Cordmarked	Incised	Curvilinear Complicated Stamped	Eroded
38BR438- 2	2								1		1				
38BR438- 3	2				2				1	12	1	1			
38BR 45- 1	2												1		
38BR 55- 1	13	1		3			1	1		1	2	6		1	3
38BR 55- 2	15				2				1	1		2			1
38BR 55- 3A	1			1											
38BR 55- 4A	3														
38BR 55- 5A	2					1									
38BR 55- 8A	1														
38BR 55- 12A															1
38BR 55- 17A															1
38BR 55- 18A	1										1				
38BR 55- 21A											1				
38BR 55- 23A				1											
38BR 55- 25B	2														
38BR 55- 27A	1			1				1							
38BR 55- 28A	2									4	1				
38BR 55- 29A							1			4					2
38BR 55- 30A	1			2											
38BR 55- 31A	1			1											
38BR 55- 32A	1														
38BR 55- 42A								1			1				
38BR 55- 45A				1											
38BR 55- 46A	1														
38BR 55- 50A	1														

PREHISTORIC CERAMIC SUMMARY

Provenience	Plain	Punctate	Linear Punctate	Parallel Simple Stamped	Crossed Simple Stamped	Linear Check Stamped	Simple Stamped/ Linear Check Stamped	Bold Check Stamped	Fine Check Stamped	Bold Cordmarked	Fine Cordmarked	Fine Cross Cordmarked	Incised	Curvilinear Complicated Stamped	Eroded
38BR 55- 52A	1														
38BR 55- 53A															1
38BR 55- 54A	1														
38BR 55- 57A							1								1
38BR 55- 59A	2														
38BR 55- 60A	2														
38BR 55- 61A									1						
38BR 55- 62A	2										1				
38BR 55- 64A	2								1						
38BR 55- 65A	2														
38BR 55- 70A				1											
38BR 55- 71A		2													
38BR 55- 72A		2													
38BR 55- 73A															1
38BR 55- 76A	1														
38BR 55- 80A															1
38BR 55- 81A	1														
38BR 55- 82A	1														
38BR 55- 87A	1			1											
38BR 55- 90A										1					
38BR 55- 91A	1										2				
38BR 55-101A	4									1					
38BR 55-102A	3											1			
38BR 55-103A										2					
38BR 55-104A	3							1							

PREHISTORIC CERAMIC SUMMARY

Provenience	Plain	Punctate	Linear Punctate	Parallel Simple Stamped	Crossed Simple Stamped	Linear Check Stamped	Simple Stamped/ Linear Check Stamped	Bold Check Stamped	Fine Check Stamped	Bold Cordmarked	Fine Cordmarked	Fine Cross Cordmarked	Incised	Curvilinear Complicated Stamped	Eroded
38BR 55-105A	3									2					
38BR 55-106A	4														
38BR 55-107A										2					
38BR 55-108A				1											
38BR 55-110A															1
38BR 55-112A	1														
38BR102- 2				6											2
38BR187- 2	6			2											
38BR187- 3										1					
38BR187- 4	1														
38BR187- 5	8								1	11	3	1			1
38BR259- 1															2
38BR259- 3A	1														
38BR259- 4A	5			2											
38BR259- 8A	2														
38BR259- 10A	1														
38BR259- 15				1											
38BR259- 18															1
38BR259- 20				1											
38BR259- 23D		1													
38BR259- 23H	1														
38BR259- 23I	2														
38BR259- 23J	1														
38BR259- 24C	1														3
38BR259- 29	1														

PREHISTORIC CERAMIC SUMMARY

Provenience	Plain	Punctate	Linear Punctate	Parallel Simple Stamped	Crossed Simple Stamped	Linear Check Stamped	Simple Stamped/ Linear Check Stamped	Bold Check Stamped	Fine Check Stamped	Bold Cordmarked	Fine Cordmarked	Fine Cross Cordmarked	Incised	Curvilinear Complicated Stamped	Eroded
38BR263- 1	1														
38BR265- 3											1				
38BR268- 1				1											

APPENDIX VII

PREHISTORIC SITE LOCATION DATA

SITE	Distanee to water	Rank of the nearest stream	Landform	Soil type	Soil productivity	Elevation	Relative Elevation	Aspect	Percent slope	# of streams in .5 km	Highest rank in .5 km	# of soils in .5 km	# of streams in 1.0 km	Highest rank in 1.0 km	# of soils in 1.0 km
38BR-438	200	4	TR	6	2	110	25	SO	2	1	4	4	2	4	6
38BR- 44	75	4	TE	7	1	110	5	EA	4	1	4	5	2	4	9
38BR- 45	300	4	TE	11	2	110	10	SE	4	1	4	3	1	4	5
38BR- 55	50	4	TE	7	1	120	10	SO	4	2	4	6	2	4	7
38BR- 56	250	3	TE	12T	2	140	10	SW	3	1	3	4	2	4	7
38BR-102	100	3	HS	2	4	160	20	EA	6	1	3	5	3	3	7
38BR-112	200	4	TE	5	2	130	20	NW	4	2	4	4	2	4	8
38BR-187	150	4	TR	12T	2	115	25	DR	0	3	4	4	4	4	6
38BR-259	75	3	RN	12T	2	150	25	EA	1	1	1	5	3	3	9
38BR-263	100	3	RN	12T	2	145	5	SE	5	1	1	5	3	3	9
38BR-264	10	3	FP	7	1	150	5	DR	0	1	1	5	3	3	9
38BR-265	100	3	RS	11	2	130	60	SE	5	2	3	7	3	4	10
38BR-268	50	3	RS	20	3	200	140	SW	5	3	3	5	3	3	7
38BR-269	175	4	RS	7	1	90	10	WE	5	3	4	4	5	4	5
38BR-271	200	4	RN	12T	2	130	30	SO	5	2	1	4	4	5	5

APPENDIX VIII

HISTORIC ARTIFACT SUMMARY

SITE AND PROVENIENCE	GLASS				ACTIVITIES		ARMS	CLOTHING			ARCHITECTURAL					
	Opaque	Green	Aqua tint window	Modern	Brace bit	Fence wire	Lt. Grey gun flint	Button	Buckle	Eyelet	Brick	Wrought nail	Cut nail	Wire fastener	Tipless screw	Bone
38BR 44- 1				5												No
38BR102- 3A				1												No
38BR104- 1	1															No
38BR112- 1				6							1					No
38BR187- 1				1												No
38BR259-29				4	1											No
38BR269- 1	2															No
38BR269- 4A													2			No
38BR269-10A													1			No
38BR269-11A	2															No
38BR269-12A		2														No
38BR269-14A			1									1				No
38BR269-16A												1				No
38BR269-17A												1				No
38BR291- 1	1	1		3												No
38BR291- 2A		3	2								3	11			1	No
38BR291- 3A	2			1								7				Yes
38BR291- 4A		4	4							1		11				Yes
38BR291- 6A												1				No
38BR291- 7A				1												No
38BR291- 8A			1													No
38BR291- 9A				1?												No
38BR291-10A											2					No
38BR291-11A											1	1				No
38BR291-13A																Yes

HISTORIC ARTIFACT SUMMARY

SITE AND PROVENIENCE	GLASS: Opaque	GLASS: Green	GLASS: Aqua tint window	GLASS: Modern	ACTIVITIES: Brace bit	ACTIVITIES: Fence wire	ARMS: Lt. Grey gun flint	CLOTHING: Button	CLOTHING: Buckle	CLOTHING: Eyelet	ARCHITECTURAL: Brick	ARCHITECTURAL: Wrought nail	ARCHITECTURAL: Cut nail	ARCHITECTURAL: Wire fastener	ARCHITECTURAL: Tipless screw	Bone
38BR291-14A		1														No
38BR291-17A			1													No
38BR291-19A	1															No
38BR291-21A												1				No
38BR291-23A	2										1	4				No
38BR291-24A												1				No
38BR291-25A								1				1				Yes
38BR291-26A	1	3		4?					1		1	6				No
38BR291-27A		2		1		2					7	12				Yes
38BR291-27B												2				No
38BR291-28A		2	2	1		2	1				1		8	2		Yes
38BR291-29A	7	2	6					1				5		1		Yes
38BR291-30A	1		3								1					No
38BR291-31A	3	1	8									1				No
38BR291-32A		1														No
38BR291-33A	2											1				No

APPENDIX IX

HISTORIC ARTIFACT SUMMARY

SITE AND PROVENIENCE	STONEWARE						CREAMWARE		PEARLWARE		PORCELAIN		WHITEWARE		TOBACCO	
	White	Scratch Blue	Westerwald	Refined Agate ware	British Brown	Modern	Plain	Decorated	Plain	Decorated	Plain	Decorated	Plain	Decorated	Pipe stem	Pipe bowl
38BR 38- 2									1	2						
38BR 44- 1						3				8		1	8	1		
38BR102- 2						1			1		1					
38BR102- 3A													3			
38BR102- 4A													1			
38BR112- 1						3							5			
38BR187- 1													2			
38BR269- 1						1	2	1	4	4						
38BR269- 3A									1							
38BR269-10A									1							
38BR269-11A									1							
38BR269-12A					1	1	1		3	1						
38BR269-16A									1							
38BR269-20A									1							
38BR2-9-21A										2						
38BR291- 1	3						12		3		4				1	
38BR291- 2A							1		1							
38BR291- 3A	1						2									
38BR291- 4A	1						2								1	1
38BR291- 7A																5
38BR291-12A							1									
38BR291-16A										1						
38BR291-18A																1
38BR291-20A															1	
38BR291-22A															1	

HISTORIC ARTIFACT SUMMARY

SITE AND PROVENIENCE	GLASS				ACTIVITIES		ARMS	CLOTHING			ARCHITECTURAL					
	Opaque	Green	Aqua tint window	Modern	Brace bit	Fence wire	Lt. Grey gun flint	Button	Buckle	Eyelet	Brick	Wrought nail	Cut nail	Wire fastener	Tipless screw	Bone
38BR291-14A		1														No
38BR291-17A			1													No
38BR291-19A	1															No
38BR291-21A												1				No
38BR291-23A	2										1	4				No
38BR291-24A												1				No
38BR291-25A								1				1				Yes
38BR291-26A	1	3		4?					1		1	6				No
38BR291-27A		2		1		2					7	12				Yes
38BR291-27B												2				No
38BR291-28A		2	2	1		2	1				1		8	2		Yes
38BR291-29A	7	2	6					1				5		1		Yes
38BR291-30A	1		3								1					No
38BR291-31A	3	1	8									1				No
38BR291-32A		1														No
38BR291-33A	2															No